DOCUMENT RESUME

ED 204 551	CE 029 468

TITLE	Armed Services Materials Conversion. A Documentation. Final Report.
INSTITUTION	Organization and Human Resources Development Associates, Inc., Austin, Tex.
SPONS AGENCY	Office of Vocational and Adult Education (ED), Washington, D.C.
BUREAU NO	498AH80007
PUB DATE	31 Mar 81
CONTRACT	300-78-0563
NOTE	210p.: For a related document see CE 029 469.
EDRS PRICE	MF01/PC09 Plus Postage.
DESCRIPTORS	Allied Health Occupations Education: *Competency Based Education: Curriculum Development; *Dental Assistants; Diffusion: Information Dissemination; *Learning Modules; *Material Development; *Military Training; *Physicians Assistants; Postsecondary Education
IDENTIFIERS	*Armed Services Materials Conversion Project

ABSTRACT

This report discusses Phase 1 of a project to convert armed services dental and medical curriculum materials into separate curricula for dental and physician assistant for civilian education use. The first two sections focus on project tasks and acquisition of existing military materials in dental and physician assistant training. Samples of correspondence and military materials received are provided. Section C describes conversion/development of instructional materials and the competency-based format used. Sample modules for physician assistant and dental assistant are provided. Section D concerns field testing and revision of the modules. Section E overviews coordination and dissemination efforts. Exhibits include (1) Stages of Concern of an Instructional Innovation: A Self-Instructional Program Describing a Method of Assessing the Impact of the Conversion of Military Curriculum Materials for Civilian Education Use; (2) script for slide/sound presentation, The Conversion Process for Military Training Materials; and (3) Competency-Based Instructional Design for Dental Assistant Programs, a presentation made at an American Dental Assistants Association annual meeting. Section F offers recommendations for these potential problems: availability of military materials, material quality, overlap of existing projects, lack of coordination among government agencies, and lack of acceptance of competency-based format. (YLB)

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ED204551

FINAL REPORT:
ARMED SERVICE MATERIALS CONVERSION

A DOCUMENTATION

by

Organization & Human Resource
Development Associates, Inc.
Austin, Texas
Barbara P. Mink, Ed.D., Project Director

for
U.S. Department of Education
Office of Vocational & Adult Education
7th & "D" Streets, S.W.
ROB #3 - Room 5034
Washington, D. C. 20202

Date: March 31, 1981
Contract No.: 300780563

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GENERAL INFORMATION - The firm, Organization and Human Resource Development Associates, Inc. of Austin, Texas, pursuant to a contract with U.S. Department of Education has produced a series of modules for Dental Assistant training at the postsecondary level. They are based on competencies which Dental Assistants need in their profession. The materials are individualized, self-paced materials, although care has been taken by the developers to make it possible for the instructor or individual to utilize these modules in a number of different ways and settings. The modules were developed through a process of conversion from already existent training materials used by the Armed Forces and the Coast Guard.

We wish to express appreciation to the Department of Defense (DoD), each of the Armed Services, and the Coast Guard for their cooperation and support in helping make this deliverable a reality.

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Office of Vocational and Adult Education
Contract No.: 300780563

FUNDING INFORMATION

Armed Services Materials Conversion

Project Director: Mink, Barbara

Organization: Organization and Human Resource Development Associates, Inc.
Austin, Texas

Address: 1208 Somerset Avenue, Austin, TX 78753. (512) 837-9371

Org. Type: Profit

Responsible Agency: Bureau of Occupational and Adult Education (DHEW/OE),
Washington, D.C. Div. of Research and Demonstration

Geographic location: Texas Congressional District Number 10

Contract: OEC-300-78-0563

Project: 498AH80007

The purposes of this project are to convert armed services dental and medical curriculum materials into separate curricula for dental and physician assistant, to develop a process which can be used as a guide for converting other armed services curriculum materials for civilian education use, and to develop promotional materials to facilitate the use of the curricula. Specific objectives for Phase I include (1) specifying competencies, objectives, sequences, materials, and format for at least ten modules for a dental assistant program and ten modules for a physician assistant program at the post-secondary level; (2) developing competency-based modules and user guidelines; (3) designing and initiating the validation procedure for the modules; (4) documenting the process of converting armed forces materials, and (5) initiating the development of media presentations to promote the objectives of the project. Phase II will validate and obtain final approval of materials developed in Phase I; develop media presentations; and publish and disseminate dental assistant and physician assistant curricula, the project development document, promotional pieces, and an audio-visual presentation. An advisory committee will plan and develop an initial draft of the module. Further procedures for developing each curriculum include revising, pilot testing, field testing, publishing and disseminating the module, as well as conducting inservice training for field test administrations. The project will concurrently develop a teaching guide for the modules. The products of this project will be competency-based dental assistant and physician assistant curricula; an instructors' guide; a product development model to convert military curricula to postsecondary civilian curricula; an evaluation design for quantification, analysis, and interpretation of field test data; an audiovisual presentation; and two promotional documents.

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Introduction

On October 1, 1978, the U. S. Department of Education awarded an Armed Services Materials Conversion Project to Organization and Human Resource Development Associates (OHRD) Inc. of Austin, Texas. The following report will document the activities undertaken by this organization to fulfill the following contracted objectives:

1. To convert the Armed Services dental assistant and physician assistant curriculum materials into competency-based modular designed materials appropriate for civilian postsecondary vocational programs;
2. To develop a process which can be used as a guide for converting other Armed Services curriculum materials, and
3. To develop promotional materials which will facilitate dissemination of the curriculum materials to programs where they might prove useful.

On March 31, 1981, the aforesaid project was completed and all objectives met.

Section A: Contract Requirements

CONTRACT REQUIREMENTS

In order to implement the curriculum conversion project, the U. S. Education Department outlined in its RFP the following tasks as a framework for project activity.

Task 1. Analyze dental and medical curricula developed and currently being used by the Armed Services for possible use in dental and physician assistant postsecondary vocational education programs. Acquire single copies of available print and non-print materials.

Task 2. Determine the status of dental and physician assistant curriculum materials, pertinent to this statement of work, presently being developed by the Armed Services, and acquire as appropriate and available, a single copy of each needed item.

Task 3. Identify and examine the best known civilian dental assistant and physician assistant practices pertaining to the "state of the art."

Task 4. Compare and synthesize such findings with the best known practices found within the Armed Services.

Task 5. Acquire, if necessary, available public and private educational materials which may supplement or enhance Armed Services materials.

Task 6. Convert Armed Services dental curriculum materials into competency-based modules for dental assistant training use at the postsecondary vocational/technical education level. Integrate dental assistant curriculum materials (Task 5) into logically organized competency-based modules.

Task 7. Convert Armed Services physician assistant materials into competency-based modules for physician assistant training use at the postsecondary vocational/technical education level. Integrate physician assistant curriculum materials (Task 5) into logically organized competency-based modules.

Task 8. Design a two-part plan for validating both the dental assistant and the physician assistant competency-based modules at the postsecondary level.

Task 9. Make arrangements for initiating the field test in Phase II.

Task 10. Document the process which has been used in converting Armed Services curriculum materials into civilian education use.

Print 200 copies of USED approved process (including 100 for USED).

Task 11. Develop carefully drawn guidelines for administrators and instructors who will be concerned with organizing and using the dental and physician assistant curriculum materials in postsecondary vocational education.

Print 200 copies of the approved guidelines for each of the curricula for dental assistant and physician assistant (including 50 each for USED).

Task 12. Produce components of a sound/slide presentation intended primarily for USED use which treats the three major objectives of the project with particular emphasis on the process. Develop the presentation so that significant aspects of Phase II could, with but minor modifications, and in a cost effective manner, be incorporated at a later date. Also prepare 35 mm color slides using both inexpensive graphics art and still photography.

Task 13. Initiate implementation of the validation plan for validating both converted curricula for dental and physician assistant vocational education programs at the postsecondary level.

Task 14. Prepare a submission of the results on each of the field tests (one dental, the other physician). Prepare twelve (12 copies) for USED.

Task 15. Revise dental assistant competency-based modules based on the validation. The materials shall be prepared in draft form based on the field test results of the first year's curriculum and the verification of the second year's curriculum and submitted for USED review.

Print 60 copies of the approved dental assistant curriculum (including 20 for USED), not to exceed 400 pages on white paper stock, single spaced, in three hole punch, loose leaf form.

Task 16. Revise the physician assistant competency-based modules based on the validation. The materials shall be prepared in draft form based on the field test results of the first year's curriculum and the verification of the second year's curriculum and submitted for USED review.

Print 50 copies of the approved medical assistant curriculum, (including 20 for USED), not to exceed 500 pages on white stock paper, single spaced, in three hole punch, loose leaf form.

Task 17. Develop a plan and related materials, if any, for measuring the impact of each set of finalized curricula for dental and physician assistants once they are available for use.

Prepare thirty (30) copies of the impact plan for USED follow-up purposed in the field.

Task 18. Develop two (2) illustrated promotional pieces designed to promote the curriculum materials for the dental assistant and physician assistant vocational education programs. Materials would take the form of items such as brochures, foldouts, self-mailers, etc.

Print 3,000 copies of each of the two promotional pieces (including 500 copies of each for USED).

Task 19. Modify as necessary and complete the modest sound/slide presentation.

Produce twelve packages of the sound/slide production. Each set will comprise one slide set and audio cassette accompanied by a copy of the final approved narrative for the cassette.

Task 20. Disseminate 40 copies of the dental assistant modules, 30 copies of the physician assistant modules, 100 copies of the Process, 150 copies of the Guidelines for dental assistant modules, 150 copies of the Guidelines for physician assistant modules and 2500 sets of each of the promotional items in accordance with mailing lists to be provided by the USED.

More specifically, the following deliverables to USED were contracted for as part of project compliance:

1. Three copies of a progress report for each quarter.
2. Three copies of a financial report for each quarter.
3. Three draft sets of five sample format, competency-based dental assistant modules (sent in February, 1979).
4. Three draft sets of five sample format, competency-based physician assistant modules (sent in February, 1979).
5. Three draft sets of a detailed two-part plan for validating both the dental and physician assistant competency-based modules at the postsecondary level (sent in May, 1979).
6. Five outline draft sets of organizational/utilization guidelines (sent in September, 1979).
7. Three copies of a draft script for the sound/slide presentation pertaining to curriculum conversion (sent in March, 1979).
8. Three draft sets of competency-based dental assistant modules (sent in July, 1979).

9. Three draft sets of competency-based physician assistant modules (sent in September, 1979).
10. Five copies of an interim technical report covering Phase I of the project (sent in September, 1979).
11. Twelve (12) copies of the submission of the validation field test results on the dental and physician assistant curricula for presentation to DHEW's Joint Dissemination Review Panel (sent in December, 1980 (DA) and January, 1981 (PA)).
12. Three (3) draft copies of the validated, converted dental assistant competency-based modular curriculum (sent in December, 1980).
13. Three (3) draft copies of the validated, converted physician assistant competency-based modular curriculum (sent in January, 1981).
14. Three (3) draft copies of the updated process (sent in June, 1980).
15. Thirty (30) copies of the impact plan (sent in September, 1980).
16. Three (3) draft copies of each set of guidelines (sent in June, 1980).
17. Three (3) draft copies of each of two promotional pieces (sent in February, 1980).
18. Sound/slide production components pertaining to curriculum conversion, the process and promotion with twelve (12) packages of the final approved sound/slide production (sent in March, 1981).
19. Twenty (20) printed copies of the finalized, converted curriculum for dental assistants (sent in January, 1981).
20. Twenty (20) printed copies of the finalized, converted curriculum for physician assistants (sent in March, 1981).
21. One hundred (100) copies of the formalized curriculum process (sent in September, 1980).

22. Fifty (50) copies of the approved guidelines, for each (dental and medical assistant) curriculum (sent in September, 1980).

23. Five hundred (500) copies each of the two (2) promotional pieces (sent in January, 1981).

24. Thirty (30) copies of the final updated technical report (sent in March, 1981).

Section B: Acquisition of Materials

ACQUISITION OF MATERIALS

In order to begin the process of conversion, it was necessary to obtain copies of existing military materials in the designated areas --- dental and physician assistant training. Through the cooperation of the National Center for Research in Vocational Education at Columbus, Ohio, OHRD was able to obtain copies of dental and some physician assistant training materials. For the dental assistant field, Army, Air Force, Coast Guard, and Navy documents were available. However, only Air Force materials were received for the physician assistant curriculum, and these were not complete. Since OHRD was forced to wait for the Center to proceed with the copying of the materials (and since the check for the copying costs was misplaced in the Center mailroom!), it was not until early December, 1978, that OHRD was in receipt of the first boxes of military materials.

At this time, the dental assistant materials were complete to the degree that the product developers could begin their conversion activities. Obtaining a complete set of the physician assistant materials, however, proved more problematic. First, additional materials were requested from the Center in Columbus. Then, Sheppard Air Force Base in Wichita Falls, Texas, was contacted, as it was learned that they were the main location for physician assistant training by the Air Force. With the aid of Mr. James Warren, OHRD was able to get authorization to travel to the base for the purpose of copying their materials. In addition to Plans of Instruction, handouts, some programmed texts and workbooks, it was learned that there existed sets of Instructor's Guides for each section of the materials. These were in rough outline form, and were utilized by the military only as a guide in the preparation of lecture material.

By March 1, 1979, after numerous contacts with the officers of Sheppard Air Force Base, OHRD was in receipt of all military physician assistant training materials which were accessible. It was learned that the Air Force was responsible for the training of the Navy physician assistants and that starting in 1979 would also take on the training for the Army. Therefore, USED approved the use of Air Force physician assistant materials as the only military materials employed in the conversion process for that field. At this point, the materials in hand at OHRD were somewhat complete, although there were significant portions of instructor guides as well as handouts missing. In addition, the military was not able to supply textbooks, films or film strips as described in their plans of instruction. Therefore, some of these or their equivalents were purchased or secured from available library systems. It was possible to begin the conversion process of the physician assistant materials but not with complete military material resources. Conversion in this area had to be supplemented by curriculum development. Also, the schedule of the conversion process was delayed due to the problems encountered in obtaining the proper materials. Let it be noted here that this activity did not consist of merely receiving materials to convert, as OHRD had anticipated, but rather involved ferreting out a variety of course materials which existed in a number of different places and which were not always readily available.

In addition to gaining access to the military materials in both fields, OHRD began a systematic search for civilian materials which could be used for comparison and resource purposes in the conversion process. Fifty-three community colleges listing accredited two-year dental assistant programs and forty-one colleges listing physician assistant programs were contacted. They were informed of the project's objectives and were asked to contribute their own program information if possible, specifically, program and admission requirements, course outlines, course objectives, reading lists, and any other instructional materials which might be available.

To round out the information on these fields, licensing/certification requirements for both areas were requested from fifty-one State and Regional Dental Agency Secretaries/Administrators and fifty-nine Secretaries of State Medical and Member Osteopathic Examining Boards. In addition, an ERIC search was initiated for literature concerning instruction in these fields. After a review of the search list and abstracts, microfiche copies of significant materials were obtained from The University of Texas library system.

Further contacts were made by OHRD and Dr. Barbara Mink, Project Director, with professional organizations in each of the two fields. Dr. Mink met with persons from the American Association of Medical Colleges, the American Association of Community and Junior Colleges, the American Academy of Physician Assistants, the Association of Allied Health Professionals, the American Dental Assistants' Association, and the Association of Physician Assistant Programs. Many of the persons with whom she spoke indicated a willingness to participate as Advisory personnel.

A thorough search of the Health Policy Analysis and Accountability Network (HPAAN) library was initiated. Over 8,000 documents were reviewed, mostly from the regional medical programs. Approximately thirty documents were found to be useful in the design of the curricula for the physician and dental assistants. These documents were duplicated for staff use in designing the two programs.

Exhibits - Section B

Samples of Correspondence Documenting Materials Acquisition Efforts

December 19, 1978

Mr. Jacob J. Maimone
Contracting Officer
Office of Education
Occupational & Adult Education Branch
Grant & Procurement Management Division
7th & D Streets, S.W., ROB #3, Room 5927
Washington, D.C. 20202

Dear Jake,

I spoke with Jean Milazzo today and she indicated that I should put a few things in writing to you concerning the securing of the military materials.

We got from Jim Warren the name of a contact person at the National Center for Research in Vocational Education. We contacted Dr. Shirley Chase at the Center and she indicated that they had the military materials but that they had no extra sets and that they could not duplicate the materials there. She arranged for a commercial printer to duplicate the materials at a cost to us of over $400. We sent Dr. Chase a check on October 30. As of November 28 we had not received any materials from the Center. We called Dr. Chase's office only to find that nothing had been done because the mail room for the Center's building had held the check and had just delivered it to her that day. In addition Dr. Chase was not sure what materials we needed and suggested that I go through the materials myself to determine what all should be duplicated. I went to Columbus on December 1, went through the materials and brought back to Austin what the printer could duplicate in the time I was there. The rest was shipped to Austin and received by us two days ago. After going through the PA materials from the Center we determined that over 75 key documents were still missing. We spoke to Jim Warren about this and he suggested that we go to Sheppard Air Force Base and secure the missing parts. We called Sheppard Air Force Base and got the names of the officers who needed to be contacted to allow us to gain access to the materials. The names and phone numbers of these officers have been given to Ms. Milazzo in order to set up the appropriate channels to facilitate our gaining access to the materials. Had we not been very proactive we would still not have the materials that we do have. Our activity to date to secure the materials we believe is far greater than the statement on page 5 of the USOE work statement indicates would be necessary:

> USOE will arrange for the successful offeror to gain access to those military curriculum materials already available to it such as curriculum outlines, plans of instruction, study guides, manuals, workbooks and a limited number of audiovisual materials such as transparencies... Preparation and shipping costs for approximated four hundred pounds of materials will be defrayed by the contractor.
>
> Payment for single copies of materials (both print and non-print) may be required in some instances where duplication of prototype or comparable materials entail preparation/duplication costs. Such acquisition costs will be borne by the contractor.

Another issue is what materials are to be converted? For the Dental Assistant program we have materials from the Air Force, Army and Navy. For the Physician Assistant program we have Air Force materials incomplete as yet, as mentioned above. We found out from Sheppard Air Force Base that after February 1 they will also be doing PA training for the Army. Is conversion of Air Force materials for the PA program sufficient? If not, how does USOE plan to provide us access to other materials?

Thank you for your assistance in finalizing the above matters concerning the military materials.

Cordially,

Barbara P. Mink

Barbara P. Mink, Ed.D.
Project Director

BPM/sk

P.S. Attached for your information are lists of the missing documents that we compiled after going through the materials we received from The Center for Research in Vocational Education.

February 7, 1979

Mr. James W. Warren, Jr.
Military Liaison Officer, BOAE
U. S. Office of Education
ROB -3, Room 5660
7th & D Streets, S.W.
Washington, D.C. 20202

Dear Mr. Warren:

This letter is to inform you of our conversation with Colonel Raymond Gardner of Sheppard Air Force Base on February 6, 1979, regarding the status of physician assistant training materials which were promised us by mid-January.

Colonel Gardner stated that the xeroxing of the materials was completed with the exception of nine modules which had been reported missing. The nine modules were traced to an instructor who had checked them out just before he became ill and had to be hospitalized. These have finally been secured and are being copied at Sheppard Air Force Base this week for mailing to us on Friday, February 9, 1979. When asked why he did not send the initial portion as soon as it was copied, Colonel Gardner replied that four of the five modules that we had requested for early shipment (in hopes of getting a head start) were among the missing nine modules.

We asked Colonel Gardner to document this delay in writing to us, and he indicated that he would send such a letter off on February 6, 1979. At present we await arrival of the training materials from Sheppard including comprehensive teachers guides to each area, text books, and handouts.

We will keep you informed of future developments.

Cordially,

Barbara P. Mink

Barbara P. Mink
Project Director

This correspondence was presented to McCormick at SHCS, 3 Jan 79.
M E W

Barbara P. Mink, Ed. D.
Organization and Human Resource
Development Associates, Inc.
1208 Somerset Avenue
Austin TX 78753

Dear Ms. Mink

The USAF Physician Assistant Course is currently in operation but I am sorry to inform you that the operation is in an abbreviated status. We have been directed by higher headquarters to place the program on "standby" status as of June 1979. For this reason, locally produced supportative instructional materials have been printed in a quantity to satisfy the currently identified student needs only. Therefore, additional copies are not available for distribution at this time. Should a decision be made to place the program back on "active" status, your request will be honored and a copy of each publication provided as requested.

To attempt to fulfill your other request, I am providing you with a copy of the Course Chart (atch 1) and a copy of the Plan of Instruction (atch 2). The Course Chart is used by management as a qualitative course control document and states the course identity, length, and security classification; lists major items of training equipment; and summarizes the subject matter coverage by listing units of instruction with time allocations for each unit.

The Plan of Instruction is used by the faculty in course development, implementation, and operation. The Plan of Instruction correlates with the unit of instruction and time allocations as shown on the Course Chart and provides criterion objectives which clearly describe how the student will demonstrate attainment of the desired learning outcomes. It also lists the appropriate support materials and guidance that will assist the instructor in subject presentation for each unit of instruction. When the Plan of Instruction is seperated into units of instruction, it becomes Part 1 of the lesson plan which is used to guide the subject presentation.

I appreciate the opportunity to assist in your efforts to develop separate curricula for the physician assistant post-secondary training program. I am sorry that the timing is such that I cannot readily fulfill your request completely. Please keep me informed of your progress and if I can be of further assistance, please advise.

Sincerely

MERL E. WILSON, Colonel, USAF, BSC
Chief, Department of Medicine

2 Atch
1. Course Chart
2. Plan of Instruction

Samples of Military Materials Received

PLAN OF INSTRUCTION/LESSON PLAN PART I

NAME OF INSTRUCTOR	COURSE TITLE Physician Assistant (Phase I)
BLOCK NUMBER XI	BLOCK TITLE Physical Examination

1 COURSE CONTENT	2 TIME
6. Abdomen and Genitourinary System	4

a. Given information pertaining to the physical examination of the abdomen and genitourinary system, perform a routine physical examination of the abdomen and the genitourinary system. Eighty percent of the items listed on checklist 3ALR91730-XI-6a must be performed correctly. CTS: 4a, 4b, 4c, 4d, 4e Meas: W, PC

(1) Review surface anatomy of the abdomen

(2) Abdominal inspection

(3) Abdomen auscultation

(4) Percussion of the abdomen

(5) Palpation of the abdomen

(6) Rectal examination

(7) Inspection and palpation of male genitalia

(8) Female genitalia

(9) Routine examination of abdomen and GU organs

SUPERVISOR APPROVAL OF LESSON PLAN (PART II)

SIGNATURE AND DATE	SIGNATURE AND DATE
Edward J M[illegible] 8 Aug 78	

PLAN OF INSTRUCTION NUMBER	DATE	PAGE NO.
3ALR91730	8 FEB 1978	147

ATC FORM OCT 75 133 PREVIOUS EDITION IS OBSOLETE

PLAN OF INSTRUCTION/LESSON PLAN PART I (Continuation Sheet)

COURSE CONTENT

SUPPORT MATERIALS AND GUIDANCE

Student Instructional Materials
Textbook, A Guide to Physical Examination, First Edition; Barbara Bates
SW 3ALR91730-XI-1, Introduction to Physical Examination

Audiovisual Aids
Transparency Set, Physical Examination
Film SHCS 025, Routine Pelvic Examination

Training Equipment
Equipment Set, Physical Examination (1)
Pelvic Model (16)

Training Methods
Lecture/Discussion (2 hrs)
Performance (2 hrs)

Multiple Instructor Requirements
Supervision, Safety (6 instructors for 2 hours)

Instructional Guidance
The instructor will gain the students' attention and present an illustrated lecture to the entire class on the physical examination of the abdomen and the genitourinary system. He will summarize the lecture, discuss with the class the examination of the abdomen and genitourinary system, and introduce the next subject. The class will use a study guide/workbook and practice giving routine abdominal genitourinary examinations on each other.

PART II - TEACHING GUIDE

INTRODUCTION (Min)

ATTENTION: Common complaints of your patients will be related to the abdomen, genitalia and/or rectum. No physical examination is complete without examination of these structures.

OVERVIEW: 6a. Given information pertaining to the physical examination of the abdomen and genitourinary system, perform a routine physical examination of the abdomen and the genitourinary system.

(1) Review surface anatomy of the abdomen

(2) Abdominal inspection

(3) Abdominal auscultation

(4) Percussion of the abdomen

(5) Palpation of the abdomen

(6) Rectal examination

(7) Inspection and palpation of male genitalia

(8) Female genitalia

(9) Routine examination of abdomen and GU organs

MOTIVATION: Your evaluation of these structures will be only as accurate as your examination technique and ability to observe what you elicit. There are a number of ways in which you can make this area of examination, particularly of the genitalia and rectum, less of a traumatic experience to your patient. We will try to point these out as we proceed with the discussion. A major consideration is to protect the dignity of your patients.

TRANSITION: Let us begin with a review of the surface anatomy of the abdomen.

BODY (Min)

PRESENTATION:

6. Abdomen and genitourinary system

a. Given information pertaining to the physical examination of the abdomen and genitourinary system, perform a routine physical examination of the abdomen and the genitourinary system. 80% of the items listed on checklist 3ALR91730-XI-6a must be performed correctly.

(1) Review surface anatomy of the abdomen

(a) Review the subdivisions

(b) Mention the structure in the subdivisions

1 RUQ

2 LUQ

3 RLQ

4 LLQ

(2) Abdominal inspection

(a) The skin

(b) The contour

(c) Peristalsis

(d) Pulsations

(3) Abdominal auscultation

(a) Bowel sounds

(b) Vascular sounds

(c) Other

(4) Abdominal percussion

(a) For general orientation

(b) Specific structures

1 Liver

31

2 The stomach

3 The spleen

(5) Palpation of the abdomen

(a) Light palpation

(b) Deep palpation

1 Identify masses

2 Identify areas of tenderness

3 Evaluate the abdominal organs

a The liver

b The spleen

b The spleen

c The right kidney

d The left kidney

e The aorta

(6) Rectal examination

(a) Give a brief discussion of normal anatomy

1 Male

a Anal canal

b Prostate

c Rectum

(b) Examination technique

1 Some abnormalities

2 Position

a Standing

b Lying

3 Check fecal material for occult blood

(7) Inspection and palpation of the male genitalia

(a) Anatomy

1 Penis

a Shaft

b Glans

c Urethral os

2 Testis

a Size

b Consistency

c Epididymis

d Vas deferens

3 Inguinal canal

  a Internal ring

  b External ring

  c Palpation of the penis

(b) Scrotal examination

1 Inspection

2 Palpation

  a Testis

  b Epididymis

  c Vas deferans

(c) Hernias

1 Inspection

2 Palpation

a External ring

b Internal ring

c Femoral canal

(b) Examination

1 Penis

a Inspection

(1) Skin and foreskin

(2) Glans

(3) Urethra

(8) Female genitalia

(a) Anatomy

1 External

2 Internal

a Vagina

b Uterus

(1) Cervix

(2) Fundus

(3) Isthmus

c Ovaries

d Ligaments

e Rectum

(b) Examination of female genitalia

1 Inspect the external genitalia

2 Inspect the vagina and cervix

3 Make three smears

4 Inspect the vagina as
you withdraw the spec

5 Bimanual examination

a Palpate midline area

b Palpate the lateral fornix

c Now do a bimanual with one finger in the rectum and one in the vagina

CONCLUSION (Min)

SUMMARY: 6a. Given information pertaining to the physical examination of the abdomen and genitourinary system, perform a routine physical examination of the abdomen and genitourinary system.

(1) Review the surface anatomy of the abdomen

(2) Abdominal inspection

(3) Abdomen auscultation

(4) Percussion of the abdomen

(5) Palpation of the abdomen

(6) Rectal examination

(7) Inspection and palpation of the male genitalia

(8) Female genitalia

(9) Routine examination of abdomen and GU organs

REMOTIVATION: During the last two hours we have given much information both during lecture and film presentation about the routine examination of the abdomen, the GU organs and the rectal examination. With practice you will incorporate these into your skills and make this be a significant part of your patient evaluation.

Let me stress to you that you must protect the dignity of your patients.

CLOSURE: Are there any questions?

Section C: Instructional Product Development

1. The Process of Conversion/Development
2. The Competency-Based Format
3. Format Used for the Converted Modules

THE PROCESS OF CONVERSION/DEVELOPMENT

After being involved in the acquisition and research activities mentioned above, OHRD product developers were able to begin the conversion and development activities. Because of significant comments from practitioners and instructors in the area of PA training, it was decided to develop a number of modules having to do with depression, anxiety, disease and stress, death and dying, and other topics having to do with more psycho-social oriented problems of medicine. The military materials briefly covered these topics. These topics were seen by PA program directors as of increasing importance to the practicing PA. Therefore, in addition to converting topic areas of the military materials which were relevant to civilian PA training, USED gave approval to develop additional modules in the areas mentioned above.

With the topics to be converted for both DA and PA now itemized, it was possible to sort the military materials in order to check for completeness, relevance, and up-to-dateness as compared to other curricula and texts. Points of weakness were ascertained and additional materials were obtained for use in strengthening these. With all needed resources at hand, the product developers could then begin the process of writing the new modules.

An introduction or rationale for learning for each module was prepared on the basis of the available materials. Behavioral objectives were then drafted in order to meet the standards of the competency lists available or those standards which the product developer felt were most appropriate given his/her comparison of various materials. Objectives which existed in the military materials were used as guidelines, but, more often than not, were revised before use in the final modular material.

The learning activities were written next, using all handouts, study guides, lecture outlines, or programmed text materials available from the military. In addition, civilian texts, as mentioned, were used to supplement the military material. This was especially necessary in the case of the PA materials which existed only in sketchy outline form. Any military materials which existed in narrative form were used, after review and appropriate revision, for the learning activities sections. This was often the case in the DA materials, as they included a larger amount of prewritten narrative appropriate for use as learning activities. For the most part, it was not possible to obtain any of the military audio visual instruction components. After a number of requests to Sheppard Air Force Base and the National Center for Research in Vocational Education, it was finally concluded that these materials were not available to the contractee.

After the learning activities were developed, they were broken down in appropriately short sections and interspersed with practice exercises. All practice exercises were developed by the OHRD development team and consisted of whatever activity seemed appropriate for material review individually or in groups. Examples of practice exercises designed to promote student interaction with the material include: short quizzes, role plays, discussion, journal keeping, small group work, lab work, etc. At the end of the last practice exercise, a key terms list was prepared to provide the learner with an additional opportunity for testing his/her mastery of the material. Where applicable, answers for the practice exercises were included at the end of each module.

Finally, a module test was developed to be used to ascertain whether the student had achieved the stated objectives after completing the module, or whether s/he needed additional work to obtain mastery over the material. Module test items were, for the most part, restatements of the objectives given at the beginning of the module, thereby giving the instructor a chance to determine which objectives were being achieved and which would require additional work on the part of the student. Module test answers were included at the end of the module, and could, if so desired by the instructor, be removed before giving the module to the student. Student answer sheets were developed for both the practice exercises and the module tests.

The design of the module answer sheets served several purposes. On the one hand, it provided space for students to record their responses while also encouraging them to comment on any material which seemed ambiguous or incorrect. On the other hand, the completed answer sheets were the means by which OHRD developers collected student error rate data for both practice exercise and module test answers. The student comments and suggestions on the sheets also gave specific criticisms or praise for certain items which could be used in the revision process. In this way, the data collected using the answer sheets provided much of the field test/validation material. (See below under Field Testing Procedures and Module Revision for more detail on this process.)

Once the draft modules were completed they were subjected to an in-house review process utilizing a response format (The Review Questionnaire) designed by OHRD developers for use with staff, project advisors, and instructors. The in-house review procedure consisted of another developer reading a completed draft module in order to edit and check for completeness, clarity, appropriate format, and general readability. Many errors were eliminated in this way and such a process insured that no module left the office in less than satisfactory shape.

The in-house reviewer submitted his/her completed Review Questionnaire to the original developer for appropriate module revision. After this revision process, the module was sent on to a project advisor for the purpose of checking on content. A copy of the Review Questionnaire was also included for the advisor to assure that developers would get back specific comments rather than general statements or vague perceptions on the part of the reviewers. Modules were then revised along the lines suggested by the reviewers and typed in final draft form for use in the field test process.

THE COMPETENCY-BASED FORMAT

The proposal submitted to USED by OHRD stipulated that the modules would be in a "competency-based" format. The term "competency-based instruction" has two important meanings. First and foremost, it refers to instruction and evaluation which is based upon student mastery of behavioral learning outcomes (competencies) known as "instructional objectives." Second, competency-based instruction refers to an optimal learning situation in which the students assume active participation in their own learning process thus "individualizing" their education, and where the instructor serves as a facilitator of learning rather than as just a communication device. One implication of competency-based instruction is that it is a process involving the instructor and the student in mutually planning, designing, implementing, and refining the learning materials.

Mastery of Instructional Objectives

What is an instructional objective? Learning is the process of acquiring new behaviors. The instructor's role in this process is to involve the student with the materials, the information, the activities, and any other conditions that enable the learner to acquire new behaviors most effectively. Therefore, every course should describe its objectives in terms of the new behaviors which each student should acquire by the end of the course. Behavior refers not to the nonobservable inner workings of the mind, but rather to activities that can be observed in the form of actions and responses. For example, "understanding the procedures for taking a chest X-ray" is not considered an observable behavior. Simply stated, an instructional objective is a statement of what the learner will do as an outcome of instruction; it is a statement of competency. A complete instructional objective contains three elements:

--performance required of the student

--the conditions under which the student will be expected to perform

--the criterion of acceptable performance

The following is an example of an instructional objective containing the above three elements: "Given an unlabeled diagram of the vestibule of the mouth, label the four indicated parts."

Making the competency or learning outcome the starting and ending point of instruction has several implications for the learning and evaluation process -- particularly in the areas of student motivation, design of learning materials, design of tests, and grading practice.

Objectives and student motivation. Beginning with a competency (learning outcome) stated in behavioral terms encourages the educator to examine more critically what is essential to master and what may be of secondary importance. Since students are given the required outcomes before instruction begins, they will look at them in terms of relevance to their personal educational needs and interests. Thus, the statement of outcomes allows both instructor and student to clarify and hopefully to share expectations and the purpose, value, and results of the course.

Objectives and instructional design. An objective is a statement of competence which students will demonstrate at the end of instruction. Instructional design is concerned with how to proceed from the skills the student now has to this desired competency. Task analysis may be required in order to develop a sequential ordering of needed skills from simple to complex culminating in the completion of the desired objectives. The first step in task analysis is to list all the prerequisite objectives required to finish the module. The next step is to arrange the list in order from the least to the most complex.

Next, activities and materials can be developed to teach each skill in the sequence. With such a clearly defined sequence of skills, it now becomes possible to find out where each student needs to begin in working toward the completion of all the objectives. Thus, a test item is constructed to measure student capability for each objective in the sequence. These test items can be given to the student as a pretest. The instructor may find that a given student is already able to perform all of the objectives. In such a case, the student is ready to advance to another module. Or, a student may be able to perform some but not all of the objectives. The student can then be directed to work on the objectives not yet mastered.

Objectives and testing. In addition to pretesting, post-instruction testing is also conducted to determine a student's mastery of required course objectives. Testsof this kind are called "criterion-referenced" evaluation. The standard of acceptable learner performance has been established at the very beginning of instruction in the behavioral objectives. Student performance of these objectives is then compared with this standard both before and after instruction. If the student has not attained mastery after instruction, opportunity for further involvement in learning activities can be provided; i.e., the student can be recycled through the materials until the objective is mastered. Because each test item is keyed to the objective it evaluates, the student can be directed to the original or to alternative practice materials relevant to that objective.

In this way, testing is used to ascertain an individual's performance according to an established standard -- the objective -- which is also used as a resource for the student during the learning process. Observe that testing is not used to categorize any student in relation to other students. Rather, in criterion-referenced testing, the objectives themselves dictate the test questions and the standards for assessing whether students have mastered the coursework. See Figure 1 for a comparison of norm-referenced and criterion-referenced evaluation.

Objectives and grading practice. Testing by objectives requires an approach to assigning grades that differ greatly from the norm-referenced evaluation that has been standard in the past. The norm-referenced approach assumes there is a normal distribution of student aptitude in the classroom. It uses the normal curve as a guide to assigning grades by comparing students with each other. Test scores are ranked and categorized and the grades A through F assigned to the categories.

In a course using instructional objectives and criterion-referenced testing, several alternative methods of grading are appropriate. The method an instructor uses will depend upon the nature of the course and the grading regulations of the institution. One method often employed is "credit/incomplete." In this method, the complete list of required instructional objectives for a course is made known to the students. The student proceeds through the sequenced list of objectives until all the objectives are mastered, and then the student is given credit for the course. Achievement of fewer than the required number of course objectives is designated "incomplete." The student may be allowed additional time and materials to help complete the course.

Another grading strategy is to have a student contract for a particular grade -- usually an A, B, or C. Every student is required to complete a minimum number of modules regarded as "core" content. Mastery of this minimal number of core modules will earn the student a C. To earn an A or B, the student completes a specified amount of additional work. For example, every student may be required to complete eight core modules. Additional modules of interest may then be chosen from a list of prepared instructional modules in

Figure 1

Comparison of Norm-Referenced with Criterion-Referenced Evaluation

Norm-Referenced Approach	Criterion-Referenced Approach
Testing is used to ascertain student performance in relation to others in the class.	Testing is used to ascertain student performance with respect to an established criterion or performance standard.
The normal curve is a guide in assigning grades -- it serves as a mechanism for sorting students.	Instruction is adapted to individual learning rates -- it allows for mastery of objectives in grading.
Aptitude is viewed as the capacity for learning.	Aptitude is viewed as the time required to master objectives.
Testing is used to assess individual students.	Testing is used to assess teaching.

order to fulfill the number required to achieve the A or B contract. In our example, six additional modules might be required for a B or ten additional modules for an A.

As an alternative to completing additional modules, students could also choose a special project such as a term paper, a slide program, or a research project in order to attain an A or B. Each student's particular interest plays a significant role in the attainment of a grade above C. Students who complete more or fewer modules than the number that was contracted have the option of renegotiating their grades based upon the work actually completed, or of requesting an "incomplete," in order to work for attainment of an agreed-upon contract and grade.

A Systematic Process of Materials Development and Revision

Competency-based instruction also refers to a systematic process for developing and refining learning materials. The process involves two aspects -- a technical design methodology, and collaborative decision-making on the part of instructors and learners concerning both the objectives themselves and the learning activities that teach them. The design methodology has been, in this case, often adapted to the process of conversion, as many of the modules were based upon the existing military materials. Nonetheless, whether the process was one of conversion or development, the competency-based modules are basically a training product of the steps outlined below.

Instructional product development process. The technical process of developing learning modules in this project was made, in some cases, simpler due to the available military training materials, however, many of the modules in this curriculum were developed in their entirety by the process given below. We have already touched upon some of the steps of instructional design during the discussion of objectives. The full process is as follows:

1) Formulate objectives.

2) If necessary, use task analysis to develop a sequence of skills necessary to master each objective.

3) Develop a criterion test item for each objective and for each of its prerequisite skills.

4) Select learning activities and materials for each objective.

5) Develop practice exercises which will promote student interaction with the material.

6) Assemble the objectives, learning activities, practice exercises, and corresponding test items into a learning module for distribution.

FORMAT USED FOR THE CONVERTED MODULES

Each module converted and developed for the PA and DA fields by OHRD combines a complete presentation of one subject matter area in a competency-based format with features of individualized instructional design. An Introduction* is offered at the beginning of each module to give students both a rationale for inclusion of such content in the course of study and an overview of the material covered. Following the Introduction are the instructional Objectives -- a list stating what each student should know and be able to do upon completion of the module. These are boxed in by heavy black lines for emphasis.

Regardless of the instructional approach or format of a given course, the Objectives are useful for preparing a class for a study assignment or helping students identify and overcome learning difficulties. Students can utilize the list of Objectives to get an idea of the learning outcomes expected of them. Students will find the Objectives helpful again when preparing for the Module Test. Any supplementary materials used for optional activities or further practice can be keyed to the related Objectives in the modules as a guide for students.

Following the complete listing of the module Objectives, the Learning Activities are presented, or, if the module is long, the first few Objectives may be restated indicating that the module has been broken down into subsections. For example, a module may have 24 Objectives in all, but the first set of Learning Activities may cover only Objectives one through eight. These will be restated at the beginning of the appropriate Learning Activities section.

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* The main sections of the modules are: Introduction, Objectives, Practice Exercises, Module Test, Learning Activities, Answers, and Key Terms. These module sections are capitalized throughout this section.

The section(s) of the module called Learning Activities will include presentation of the subject matter in narrative or other forms. Readings in supplemental texts may also be indicated here, as may other accompanying audio visuals, laboratory exercises, and other activities.

Immediately following the Learning Activities section will come the Practice Exercises. These will be keyed to the Objectives they involve by a designation in parentheses right after the words "Practice Exercise" i.e., (Objectives 1-8). There may be several Practice Exercises given to provide students with an opportunity to interact with the material presented. Practice Exercises may take such forms as a short quiz, a role play, or a small or large group activity. Answers (when appropriate) can be found at the end of the module where they are available to students for immediate feedback on their performance, thus giving them a chance to review those sections of the material where they feel weak. Practice Exercises are also boxed in by black lines.

In longer modules, the sequence of Objectives, Learning Activities, Practice Exercises may be repeated for each logical subsection of the material. After this sequence, however, there are always Key Terms given for the module as a whole. These are provided as an additional means by which the student can review the material.

Finally, a Module Test is provided which will test the student's mastery of the material. Each question on the Module Test corresponds exactly with the similarly numbered Objective. In other words, Objective 1 will be covered by test item 1, and the Module Test will have the same number of questions as there are objectives.

For both Practice Exercises and Module Tests, answer sheets are provided for student use. In the original draft modules utilized in the field testing activities, these were specifically designed: 1) to be removeable, 2) to provide space for student comments and suggestions concerning the material, and 3) to allow for easy tabulation of error rate data. Continued use of such a format is recommended to facilitate the ongoing process of materials revision, adaption and updating.

The PA and DA curricula have been designed with the requirements of an individualized course in mind. The modules may be used with equal ease, however, in a lecture course or a course combining lecture with optional activities.

If the choice of format and approach is up to the instructor, however, we hope they will consider adopting a competency-based, individualized approach to working with their students. This approach is based upon the application of general systems theory to the design and conduct of instruction. To find out more about this type of instruction, refer to Implementing Personalized Instruction: A Systematic Approach, by Barbara P. Washburn (Mink) (Kendall-Hunt Publishing Co., Dubuque, Iowa, 1975). This is a self-instructional workbook developed to assist postsecondary educators in designing competency-based courses of instruction.

Exhibits - Section C

Sample Converted Physician Assistant Module

PHYSICIAN ASSISTANT CURRICULUM MODULE
PREPARED BY
ORGANIZATION AND HUMAN RESOURCE
DEVELOPMENT ASSOCIATES, INC.
AUSTIN, TEXAS

Barbara P. Mink, Ed.D., Project Director

Module Title:

ANTI-EPILEPTIC DRUGS

Module prepared for:

U.S. Department of Education
Office of Vocational and Adult Education
7th and "D" Streets, S.W.
Washington, D.C. 20202

Date: March 31, 1981
Contract No.: 300780563

PHYSICIAN
ASSISTANT

GENERAL INFORMATION - The firm, Organization and Human Resource Development Associates, Inc. of Austin, Texas, pursuant to a contract with U.S. Department of Education has produced a series of modules for Dental Assistant training at the postsecondary level. They are based on competencies which Dental Assistants need in their profession. The materials are individualized, self-paced materials, although care has been taken by the developers to make it possible for the instructor or individual to utilize these modules in a number of different ways and settings. The modules were developed through a process of conversion from already existent training materials used by the Armed Forces and the Coast Guard.

We wish to express appreciation to the Department of Defense (DoD), each of the Armed Services, and the Coast Guard for their cooperation and support in helping make this deliverable a reality.

DISCRIMINATION PROHIBITED - No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance, or be so treated on the basis of sex under most education programs or activities receiving Federal assistance.

POSITION OF THE DEPARTMENT OF EDUCATION - The activity which is the subject of this report was supported in whole or part by the U.S. Department of Education. However, the opinions expressed herein do not necessarily reflect the position of the Department of Education, and no official endorsement by the Department of Education should be inferred.

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Office of Vocational and Adult Education
Contract No.: 300780563

Anti-epileptic Drugs

Introduction

There are over half a million epileptics in the U.S. who are dependent on one or more of the drugs to be discussed in this module. Without the help of these drugs, leading a normal or near-normal life would be impossible.

The anti-epileptic drugs available are quite useful and effective but they have many side effects - both minor and serious. There are many types of epilepsy and many anti-epileptic drugs available. No drug, however, is effective in all types of epilepsy. In fact, some drugs are useful in one type and aggravate another. Some agents are quite toxic and should be used only after all others fail. Many patients may have more than one type of epilepsy, or require several drugs to control one type. Your responsibility will be to control the symptoms of the type or types of epilepsy present with the smallest number of least toxic drugs.

In this module we will discuss:

- Epilepsy and the different types.
- Anti-epileptic drugs.
- Anti-epileptic therapy.

Objectives

Objective 1 Define epilepsy.

Objective 2 Define seizure.

Objective 3 List three types of seizures.

Objective 4 Describe briefly the characteristics of: psychomotor seizures, the three types of petit mal seizures, and the three types of motor seizures.

Objective 5 Name the classification of drugs used to prevent epileptic seizures.

Objective 6 Give two possible explanations of the mode of action for the anticonvulsant drugs.

Objective 7 Name the five major anti-epileptic drug categories.

Objective 8 Name the drug of choice for each type or classification of epilepsy and state adverse effects

Objective 9 List the ten general principles of anti-epileptic therapy.

Note: The terms central nervous system depressants, anticonvulsant drugs, and anti-epileptic drugs are used interchangeably throughout this module.

Objective 1 Define epilepsy.

Objective 2 Define seizure.

Objective 3 List three types of seizures.

Objective 4 Describe briefly the characteristics of: psychomotor seizures, the three types of petit mal seizures, and the three types of motor seizures.

Learning Activities

Epilepsy is a collective term for a group of chronic convulsive disorders having in common the occurrence of usually brief episodes (seizures) associated with loss or disturbance of consciousness. Often these seizures are characterized by tonic-clonic or repetitive body movements and sometimes autonomic hyperactivity, and always correlated with abnormal and excessive EEG discharges.

Seizures are paroxysmal (episodic) events. They have a beginning and they have an end in the stream of a patient's consciousness. Seizures are brief and most last less than 90 seconds. The seizure may be followed by severe impairment of behavior that may last much longer.

There are more than a dozen distinguishable types of seizures, but for our purposes we will only be concerned with three.

1. Motor seizures. Motor seizures can be classified into three classes, the first is the grand mal.

   a) The grand mal is a major convulsion of the tonic-clonic type. It is generalized, involving the entire body.

   b) The second class is focal seizures. This seizure is localized in one part or one side of the body.

   c) The third class is a type of focal seizure called the Jacksonian. It is differentiated from a strict focal seizure by a progression of involuntary movements from one part of the body to another.

2. Petit mal. Petit mal seizures are characterized by brief attacks of loss of consciousness, usually with some symmetrical clonic motor activity varying from eyelid blinking to jerking of the entire body. Petit mal seizures can be classified as:

   a) Pure petit mal absence - no motor activity with short stare lasting from 10 to 90 seconds.

   b) Myoclonic - varying degrees of spasm .

   c) Akinetic - relaxation of muscles.

3. Psychomotor. Psychomotor seizures are characterized by pseudo-purposeful, confused behavior and/or psychic activity (automatism and aura) which is irrelevant for the time and place. The patient is often amnesic afterwards.

Practice Exercise (Objectives 1-4)

1. Define epilepsy.
2. Define seizure.

Match the following characteristics with the correct type of seizure. Use each selection only once.

3. _____ petit mal
4. _____ petit mal
5. _____ motor seizures
6. _____ motor seizures
7. _____ motor seizures
8. _____ psychomotor
9. _____ psychomotor

A. no motor activity.
B. patient is often amnesic afterward.
C. automatism and aura.
D. major convulsion of the tonic-clonic type.
E. progression of involuntary movements from one part of the body to another.
F. varying degrees of spasms.
G. localized in one part or one side of the body.

Objective 5 Name the classification of drugs used to prevent epileptic seizures.

Objective 6 Give two possible explanations of the mode of action for the anticonvulsant drugs.

Learning Activities

Nearly all epileptics are dependent upon drug therapy to prevent seizures and enable them to lead more normal and useful lives. Although the ideal drug is certainly not available, present drugs do help at least 80% of epileptics. These drugs may be classified as Central Nervous System (CNS) depressants but are selective enough to prevent epileptic seizures in doses that do not cause excessive drowsiness.

The mechanism of action of the anticonvulsant (CNS) drugs is not known with certainty. Seizures are believed to be produced by discharges of abnormal foci in the brain. These discharges then spread creating long reverberating circuits. The anticonvulsant drugs may act by:

a) suppressing the abnormally discharging foci or,

b) preventing the spread of the discharges by raising the threshold for stimulation and thereby reducing the excitability of the normal neurons.

Practice Exercise (Objectives 5-6)

1. Name the classification of drugs used to prevent epileptic seizures.

2. Two possible explanations of the mode of action for the anticonvulsant drugs are:

A.

B.

Objective 7 Name the five major anti-epileptic drug categories.

Objective 8 Name the drug of choice for each type or classification of epilepsy and state adverse effects

Learning Activities

Anti-epileptic Drugs

1. Barbiturates and related drugs.
2. Hydantoins.
3. Oxazolidones.
4. Succinimides.
5. Miscellaneous anticonvulsants.

Barbiturates and related drugs. Phenobarbital (Luminal) is one of the oldest, safest, cheapest and most effective agents. It is used principally in the treatment of grand mal seizures and is considered by most to be the drug of choice for initial therapy. It is sometimes also used for the treatment of psychomotor seizures. It is not considered effective in petit mal seizures (unless the patient also has grand mal seizures).

The most common side effect is drowsiness. Caution should be exercised during withdrawal. A slow withdrawal is recommended to prevent rebound convulsions.

Mephobarbitol (Mebaral) is demethylated in the body to phenobarbitol, therefore it is quite similar but less potent, and more expensive.

Primidone (Mysoline) is not a true barbiturate, but is closely related. It is also converted to phenobarbital in the body. It is most useful in psychomotor seizures with some effect on grand mal seizures, but it is most often reserved for refractory cases. Large doses are required for effectiveness which cause marked sedation.

Hydantoins. Diphenylhydantoin (Dilantin) is the drug of choice among the hydantoins and is the most useful in grand mal and psychomotor seizures. It is often used in combination with phenobarbital causing a reduction in drowsiness.

There are many side effects, gingival hyperplasia and ataxia being the most common. Others are: ocular signs and symptoms (nystagmus), skin eruptions, hypocalcemia, and decreased serum folic acid levels resulting in megaloblastic anemia. Rare but serious reactions include blood dyscrasias and hepatitis.

Mephytoin (Mesantoin) is extremely toxic and used only in refractory cases. Blood dyscrasias is one of its more serious side effects.

Oxazolidones. Trimethadione (Tridione) and Paramethadione (Paradione) are similar and used most effectively in the treatment of petit mal seizures but should be reserved for refractory cases because of their toxicity. Paramethadione is less toxic but also less potent.

Common side effects are photophobia, drowsiness, ataxia, nausea and vomiting. Serious but less common side effects are hepatitis, kidney damage, blood dyscrasias, exfoliative dermatitis, erythemia multiforma.

Succinimides. Ethosuximide (Zarontin), Methsuximide (Celontin), and Phensuximide (Milontin) are used for the treatment of petit mal seizures, with Ethosuximide (Zarontin) being the drug of choice.

Common side effects are drowsiness. A rare but serious side effect is blood dyscrasias.

Miscellaneous anticonvulsants. Phenacemide (Phenarone) is principally used in refractory psychomotor seizures but also may be effective in the treatment of grand mal, petit mal, and mixed seizures. It should be used with great caution and only after other medications have failed. Its side effects are potentially fatal and include hepatitis, blood dyscrasias, renal disturbances, and toxic psychosis (suicidal tendencies).

Acetazolamide (Diamox) is occasionally used for the treatment of several types of epilepsy in combination with other drugs. Its effect may be due to a mild metabolic acidosis or inhibition of carbonic anhydrase in the brain, or premenstrual diuresis. It has a temporary effect and is seldom used.

Diazepam (Valium), when used by I.V. or I.M., may be of value in the treatment of petit mal and akinetic epilepsy.

Carbamazepine(Tegretol) has been used in Europe for several years but has only recently been approved in the U.S. as an anti-epileptic drug. It is effective in the treatment of grand mal seizures and considered very effective for psychomotor seizures. It has been suggested that the use of Carbamazepine (Tegretol) be limited to refractory psychomotor and refractory grand mal epilepsy due to its toxicity.

Common side effects are diplopia, dizziness, drowsiness, unsteadiness, nausea and vomiting. Less common but more serious side effects are liver abnormalities, blood dyscrasias, and skin disorders.

TABLE 1

TYPE OF DRUG	Grand Mal	Petit Mal	Psychomotor
Barbiturates & related drugs	X drug of choice - phenobarbital		X
Hydantoins	X		X drug of choice - diphenylhydantoin
Oxazolidones		X	
Succinimides		X drug of choice - ethosuximide	X carbamazepine
Misc. anti-convulsants	X carbonic anhydrase inhibitors	X carbonic anhydrase inhibitors & Diazepam	X carbamazepine

Practice Exercise (Objectives 7-8)

1. List five major antiepileptic drug categories.

In the blanks provided by each drug, list the drug categories.

2. ______________ Phenobarbitol (Luminal)
3. ______________ Trimethadione (Tridione)
4. ______________ Phenacemide (Phenarone)
5. ______________ Primidone (Mysoline)
6. ______________ Diphenylhydantion (Dilantin)
7. ______________ Ethosuximide(Zarontin)
8. ______________ Diazepam (Valium)
9. ______________ Carbamzepine (Tegretol)
10. ______________ Mephobarbitol (Mebaral)
11. ______________ Acetazolamide (Diamox)
12. ______________ Mephytoin (Mesantoin)
13. ______________ Phensuximide (Milontin)
14. ______________ Paramethadione (Paradione)

15. Select the drug of choice for grand mal seizures and next to it list that drug's side effects:

    a. Phenobarbital
    b. Mephytoin
    c. Trimethadione
    d. Methsuximide
    e. Diphenylhydantoin

16. Select the drug of choice for psychomotor seizures and next to it list that drug's side effects:

    a. Phenobarbital
    b. Mephytoin
    c. Diazepam
    d. Diphenylhydantoin
    e. Mephobarbitol

17. Select the drug of choice for petit mal seizures and next to it list that drug's side effects:

    a. Carbamzepine
    b. Ethosuximide
    c. Paramethadione
    d. Primidone
    e. Mephytoin

Objective 9 List the ten general principles of anti-epileptic therapy.

Learning Activities

1. Diagnose the type of epilepsy - Some drugs may be effective for one type of epilepsy and aggravate another. Many patients have mixed types and must receive several different drugs. Treat the most severe type of epilepsy first and begin therapy as early as possible. This is especially important in some types of childhood epilepsy.

2. Select proper drug - Start with a low dose of the least toxic drug that is useful for the type of epilepsy diagnosed.

3. Adjust dosage - Increase the dosage until the patient is controlled or until the toxic side effects are noted.

4. Withdraw or add drugs as symptoms and side effects dictate.

5. Generally withdraw drugs slowly to prevent rebound convulsions.

6. Termination of therapy - Drugs may be able to be withdrawn gradually after 2 - 3 symptom free years. (This is most likely in children.)

7. Avoid toxic combinations - Many of these agents are quite toxic. Use them with caution and try not to combine agents with the same toxic effects.

8. No one drug is effective in all types of epilepsy.

9. The two most widely used anti-epileptics, phenobarbital and diphenylhydantoin, cause numerous drug interactions.

10. Optimal care - Frequent routine follow-up examinations should include complete blood counts, and liver and urinary analysis when appropriate.

Practice Exercise (Objective 9)

1. List the ten (10) general principles of anti-epileptic therapy.

2. Petit mal is an epileptic condition more common in children and characterized by a three cycle per secondwave called "spike and dome" in the EEG. If a child had mixed grand mal and petit mal epilepsy, which condition would you treat first?

3. To treat grand mal in this child you would probably not start with phenacemide (phenurone), because phenacemide (select all appropriate letters):
   a. is not effective in grand mal.
   b. is effective only in temporal lobe epilepsy.
   c. has a risk of blood dyscrasias.
   d. has a risk of psychic side effects.

Anti-epileptic Drugs

Terms

Akinetic

Aura

Clonic seizure

Epilepsy

Focal

Grand mal

Myoclonic seizure

Petit mal

Psychomotor

Rebound convulsions

Seizure

Tonic seizure

Anti-epileptic Drugs

Module Test

1. Define epilepsy.
2. Define seizure.
3. List three types of seizures.
4. Describe briefly the characteristics of: psychomotor seizures, the three types of petit mal seizures, and the three types of motor seizures.
5. Name the classification of drugs used to prevent epileptic seizures.
6. Give two possible explanations of the mode of action for the anticonvulsant drugs.
7. Name the five major anti-epileptic drug categories.
8. Name the drug of choice for each type or classification of epilepsy and state adverse effects.
9. List the ten general principles of anti-epileptic therapy.

Practice Answers

Practice Exercise (Objectives 1-4)

1. Epilepsy is a collective term for a group of chronic convulsive disorders having in common the occurrence of usually brief episodes (seizures) associated with loss or disturbance of consciousness, often with characteristic tonic-clonic or repetitive body movements and sometimes autonomic hyperactivity, and always correlated with abnormal and excessive EEG discharges.

2. Seizures are paroxysmal or episodic events. They have a beginning and they have an end in the stream of a patient's consciousness. Seizures may be followed by severe impairment of behavior that may last much longer.

3. A
4. F
5. D
6. G
7. E
8. B
9. C

Practice Exercise (Objectives 5-6)

1. Central Nervous System (CNS) depressants

2. A. suppressing the abnormally discharging foci, or
   B. preventing the spread of the discharges by raising the threshhold for stimulation and thereby reducing the excitability of the normal neurons.

Practice Exercise (Objectives 7-8)

1. A. Barbiturates and related drugs
   B. Hydantoins
   C. Oxazolidones
   D. Succinimides
   E. Miscellaneous anti-convulsants

2. Barbiturates
3. Oxazolidones
4. Miscellaneous anti-convulsants
5. Barbiturates
6. Hydantoins
7. Succinimides
8. Miscellaneous anti-convulsants
9. Miscellaneous anti-convulsants
10. Barbiturates
11. Miscellaneous anti-convulsants
12. Hydantoins
13. Succinimides
14. Oxazolidones

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Practice Exercise Answers

15. Phenobarbitol - drowsiness
16. Diphenylhydantoin - gingival hyperplasia, ataxia, ocular signs symptoms (nystagmus), skin eruptions, hypocalcemia and decreased serum folic acid levels resulting in megaloblastic anemia, blood dyscrasias and hepatitis.
17. Ethosuximide - drowsiness, ataxia, G.I. disturbances, headache, dizziness, and blood dyscrasias.

Practice Exercise (Objective 9)

1. A. diagnose the type of epilepsy
   B. select proper drug
   C. adjust dosage
   D. withdraw or add drugs as symptoms and side effects dictate
   E. generally withdraw drugs slowly to prevent rebound convulsions
   F. termination of therapy
   G. avoid toxic combinations
   H. no one drug is effective in all types of epilepsy
   I. the two most widely used antiepileptics, phenobarbitol and diphenylhydantoin, cause numerous drug interactions.
   J. optimal care

2. Grand mal - the more severe condition should be treated first, sometimes petit mal increases in frequency during control of grand mal.

3. c and d - Phenacemide is effective in grand mal epilepsy but is too toxic for use except in very limited circumstances.

Anti-epileptic Drugs

Module Test Answers

1. Epilepsy is a collective term for a group of chronic convulsive disorders having in common the occurrence of usually brief episodes (seizures) associated with loss or disturbance of consciousness, often with characteristic tonic-clonic or repetitive body movements and sometimes autonomic hyperactivity, and always correlated with abnormal and excessive EEG discharges.

2. Seizures are paroxysmal or episodic events. They have a beginning and they have an end in the stream of a patient's consciousness. Seizures may be followed by severe impairment of behavior that may last much longer.

3. Motor seizures, Petit mal, psychomotor

4. grand mal - generalized, involves the entire body
   focal seizures - localized in one part or one side of the body.
   Jacksonian - progression of involuntary movements from one part of the body to another

   pure petit mal - no motor activity with a short stare lasting from 10 to 90 sec.
   myoclonic - varying degrees of spasma
   akinetic - relaxation of muscles

   psychomotor - confused behavior and/or psychic activity (automatisms & aura) often amnesic afterwards

5. Central Nervous System (CNS) depressants

6. A. suppressing the abnormally discharging foci
   B. preventing the spread of the discharges by raising the threshhold for stimulation and thereby reducing the excitability of the normal neurons.

7. Barbiturates and related drugs
   Hydantoins
   Oxazolidones
   Succinimides
   Miscellaneous anti-convulsants

8. Phenobarbitol - drowsiness.
   Diphenylhydantoin - gingival hyperplasia, ataxia, ocular signs symptoms (nystagmus) skin eruptions, hypocalcemia and decreased serum folic acid levels resulting in megaloblastic anemia, blood dyscrasias and hepatitis.
   Ethosuxmide - drowsiness, ataxia, G.I. disturbances, headache, dizziness, and blood dyscrasias.

9. a. diagnose the type of epilepsy
   b. select proper drug
   c. adjust dosage
   d. withdraw or add drugs as symptoms and side effects dictate
   e. generally withdraw drugs slowly to prevent rebound convulsions
   f. termination of therapy
   g. avoid toxic combinations
   h. no one drug is effective in all types of epilepsy
   i. the two most widely used anti-epileptics, phenobarbitol and diphenylhydantoin, cause numerous drug interactions
   j. optimal care

Sample Converted Dental Assistant Module

DENTAL ASSISTANT CURRICULUM MODULE
PREPARED BY
ORGANIZATION AND HUMAN RESOURCE
DEVELOPMENT ASSOCIATES, INC.
AUSTIN, TEXAS

Barbara P. Mink, Ed.D., Project Director

Module Title:

SILICATE CEMENT

Module prepared for:

U.S. Department of Education
Office of Vocational and Adult
Education
7th and "D" Streets, S.W.
Washington, D.C. 20202

Date: January 31, 1981
Contract No.: 300780563

DENTAL
ASSISTANT

GENERAL INFORMATION - The firm, Organization and Human Resource Development Associates, Inc. of Austin, Texas, pursuant to a contract with U.S. Department of Education has produced a series of modules for Dental Assistant training at the postsecondary level. They are based on competencies which Dental Assistants need in their profession. The materials are individualized, self-paced materials, although care has been taken by the developers to make it possible for the instructor or individual to utilize these modules in a number of different ways and settings. The modules were developed through a process of conversion from already existent training materials used by the Armed Forces and the Coast Guard.

We wish to express appreciation to the Department of Defense (DoD), each of the Armed Services, and the Coast Guard for their cooperation and support in helping make this deliverable a reality.

DISCRIMINATION PROHIBITED - No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance, or be so treated on the basis of sex under most education programs or activities receiving Federal assistance.

POSITION OF THE DEPARTMENT OF EDUCATION - The activity which is the subject of this report was supported in whole or part by the U.S. Department of Education. However, the opinions expressed herein do not necessarily reflect the position of the Department of Education, and no official endorsement by the Department of Education should be inferred.

Office of Vocational and Adult Education
Contract No.: 300780563

Silicate Cement

Introduction

Silicate cement, like amalgam, is a tooth restorative material. However, this is about the only thing the two materials have in common. Amalgam is used to restore posterior teeth and silicate cement is primarily used to restore anterior teeth.

Objectives

Objective 1 State why silicate is used to restore anterior teeth.

Objective 2 Name the components of silicate cement liquid and silicate cement powder.

Objective 3 State two precautions one should take to insure that the silicate is not contaminated.

Objective 4 State four advantages and four disadvantages of using silicate cement over metallic restorative materials.

Objective 5 Demonstrate, by using the proper equipment, the technique for preparation and mixing of silicate cement.

Objective 6 State with what the dentist coats the filling, and why this is necessary.

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Learning Activities

Silicate cement is used to restore anterior teeth mainly because of its aesthetic value (pleasing appearance). It is supplied in a variety of shades to match the tooth color of each patient. Many dentists now prefer composite filling materials over silicate cement, but silicate cement has certain anti-cariogenic properties that still make it the material of choice for many patients, particularly those with rampant caries. To achieve the best results with silicate cement, the mixing time and the mixing technique are very critical. Any variation from the established mixing time and mixing technique can produce an improper mix consistency, an improper shade match, and a weakened filling. First of all, we will describe the components of silicate cement.

Components. A powder and a liquid are mixed together to form silicate cement. The powder is supplied in a small bottle. The liquid arrives in a small ampule, which is heremetically sealed. Both the powder and the liquid, along with a dispensing bottle for the liquid, arrive packed together in a small box.

- Powder. The powder component of silicate cement is silica (the main constituent), alumina, and various fluxes, including fluorine. The powder is so finely ground that it resembles talcum powder. The manufacturer has very carefully produced these powders to assure precise shades. It is important, therefore, that you do not let foreign matter get into the powder. Even dust from the air can enter an uncovered bottle of powder and upset the delicate color balance. Certainly, unclean instruments or an unclean mixing surface would significantly affect the color of the mix. Be sure that you maintain the cleanliness of everything you use in handling silicate cement powder to avoid any color change.

- The primary ingredients of the liquid part of silicate cement are usually phosphoric acid and water. The percentage of each ingredient varies a little from brand to brand. Thus, it is important that you do not interchange the components of different brands. Ideally, the powder and liquid should be of the same lot number as well as of the same brand. It is also important that you keep the bottle closed, except when dispensing the liquid. If silicate cement liquid is exposed to a high humidity atmosphere, it will absorb water. If it is exposed to low humidity, it will lose water. Excess water in the silicate cement liquid causes rapid setting, and a loss of water from the liquid causes slow setting. For the same reason (possible water content imbalance), you must not place the liquid on the mixing surface prematurely. Ask the dentist to notify you when to begin mixing the materials.

It is a good idea to wipe the neck of the bottle containing the liquid every 2 or 3 days. Phosphoric acid crystals form around the neck of the bottle and can make the bottle cap fit improperly. A cap that fits improperly does not protect the liquid and can cause it to gain or lose water.

If silicate cement is supplied to you by different manufacturers, their dispensing bottles sometimes look much alike. Since these liquids must not be used interchangeably, you should store each powder and liquid set together to avoid mismatching the liquids and powders.

Desirable Properties. Silicate cement has some advantages over metallic restorative materials. The major desirable property of silicate cement is its natural appearance. As we said earlier, it is manufactured in many shades to match the shade of the tooth being restored. Silicate cement is also translucent (transmits light) to about the same degree as natural tooth enamel, which contributes to its natural appearance. As we mentioned earlier, one of silicate cement's most important properties is its anticariogenic action. The fluorine concentration in the average silicate cement powder is from 12 to 15 percent. The clinical significance of the fluorine is quite important because the fluorine passes from the silicate restoration to the tooth's enamel. As a result, there is a low incidence of recurrent caries at the margin of a silicate restoration. Since marginal caries are the most frequent cause of the failure to most dental restorative materials, silicate cement is notably superior from this standpoint. Another of its desirable properties is its very low rate of thermal conductivity. Silicate cement is also relatively easy to mix and can be manipulated more easily than metals and alloys.

Undesirable Properties. Even though silicate cement is classified as a permanent filling material, it is one of the least permanent. It is brittle, it is soluble in mouth fluids, it has a low crushing strength, and it contracts somewhat upon setting. All of these undesirable properties reduce the life expectancy of a silicate cement filling and thereby limit its use.

Combined Properties. As with all dental materials, silicate cement has some desirable qualities and some undesirable qualities. If you recall, amalgam has a number of desirable qualities and very few undesirable qualities. In comparison, silicate cement has very critical desirable qualities, but its undesirable qualities are just as critical.

Mixing Procedure. As we stated earlier, silicate cement is relatively easy to mix. There are, however, definite steps to be taken and definite time limits in the mixing procedure. These steps are preparing the equipment, preparing the materials, and using an approved mixing technique.

• Equipment preparation. To mix silicate cement, you need the following items of equipment:

(a) A clean, cool, dry glass slab. This should be used only for mixing silicate cement. If the glass slab becomes chipped or scratched, you should replace it.

(b) The #142 plastic spatula. Be sure that the spatula is clean and dry. Never use the metal spatulas (#313 and #324) for mixing silicate as they will stain the mix.

(c) The powder measuring stick. This is an optional item. It is about 4 inches long and is slightly larger than a pencil in diameter. At the end of the stick is a cup-shaped depression used to measure the volume of powder.

After you have the above items laid out for use, you may need to run cold water over the glass slab and spatula to cool them to between 65° and 75° F. CAUTION: Be sure you don't cool them below the dewpoint. Next, you should dry them thoroughly, using a clean towel. You are now ready to prepare the materials for mixing.

• Materials preparation. The dentist uses a shade quide to determine the number of the shade that matches the patient's tooth. After you have the shade number, you can measure out and proportion the correct shade of powder on the glass slab. For a normal-sized mix, use the large end of the measuring stick and measure out four to five portions of the powder (approximately 1/6 teaspoon). Then, using the spatula, divide the powder into halves. Further divide one of the halves into quarters which makes one half and two quarter portions. Now, divide one of the quarter portions into eighths so that you end up with a half, a quarter, and two 1/8 portions of powder. Do not place the liquid on the glass slab until the dentist indicates that s/he is ready for you to begin mixing. Place 2 to 3 drops of liquid close to the divided portions of powder and begin mixing the materials.

• Mixing technique. To mix the liquid and powder, be sure to use the #142 spatula. To start mixing, incorporate the first portion of the powder (the half portion) into the liquid. Remember always to mix silicate cement with a folding motion, using only a small area of the glass slab. When you have mixed the first powder portion until it appears completely wet, then bring the quarter portion into the mix. Continue adding the portions of powder until the mix is of puttylike consistency. The entire mixing time should not exceed 1 minute. Briefly stated, mix silicate quickly.

Placement procedures. The dentist uses a clear plastic strip matrix to partially form and hold the silicate cement in place until the initial set is complete. S/He condenses your mixture into the cavity preparation with one of the stellite plastic filling instruments. After the silicate has set, s/he trims and smooths the material until it assumes the contour of the natural tooth. Next, the dentist places a protective coating on it to prevent a gain or loss of moisture. If the newly placed filling is prematurely exposed to oral fluids, it will stain more easily. The premature exposure of a new silicate cement mixture to air can also cause the restoration to stain more easily. To prevent the exposure of silicate cement to air and mouth fluids prematurely, the dentist coats the cement with silicate lubricant. As with dental amalgam, the key to quality silicate cement fillings is the teamwork between you and the dentist you assist.

Practice Exercise (Objectives 1-6)

1. Which teeth are normally restored with silicate cement?
2. Name the main constituent of silicate cement powder.
3. Why is it important not to introduce any foreign matter into the silicate cement powder?
4. Name the primary ingredients of the silicate cement liquid.
5. What is the effect on the cement's setting time if the silicate cement liquid loses water?
6. List the desirable properties of silicate cement.
7. List the undesirable properties of silicate cement.
8. Name the items needed to mix silicate cement and briefly comment about their proper temperature.
9. How does the dentist determine the number of the shade of silicate cement needed to match the patient's natural teeth?
10. How should you divide the silicate cement powder after you have placed it on the glass slab?
11. Describe the proper mixing motion, final consistency, and mixing time for silicate cement.
12. When the dentist is placing a silicate restoration, what is used to partially form and hold the silicate cement in place until the initial set is complete?
13. What instrument is used to carry and place the silicate cement into the cavity preparation?
14. How is a newly placed silicate restoration protected from premature exposure to oral fluids?

Silicate Cement

Terms

Silicate cement liquid

Silicate cement powder

Silicate lubricant

Silicate Cement

Module Test

1. State why silicate is used to restore anterior teeth.
2. Name the components of silicate cement liquid and silicate cement powder.
3. State two precautions one should take to insure that the silicate is not contaminated.
4. State four advantages and four disadvantages of using silicate cement over metallic restorative materials.
5. Demonstrate, by using the proper equipment, the technique for preparation and mixing of silicate cement.
6. State with what the dentist coats the filling, and why this is necessary.

Silicate Cement

Practice Answers

Practice Exercise (Objectives 1-6)

1. Anterior teeth.

2. Silica

3. To avoid any color change.

4. Phosphoric acid and water.

5. Loss of liquid causes slow setting.

6. Natural appearance, anticariogenic action, low thermal conductivity, and easy manipulation.

7. It is brittle, soluble in mouth fluids, has a low crushing strength and contracts upon setting.

8. A clean, dry, cool, glass slab and #142 spatula. The plastic measuring stick is optional. The temperature of the slab and spatula should not be below the dew point.

9. A shade guide is used.

10. Divide it so that you end up with a half, a quarter, and two 1/8 portions of powder.

11. Using a folding motion and a small area of the slab, you should incorporate the powder into the liquid until the mixture has a putty-like consistency. Mixing time should not exceed 1 minute.

12. A clear plastic matrix strip.

13. One of the stellite plastic filling instruments.

14. It is coated with a silicate lubricant.

Silicate Cement

Module Test Answers

1. Silicate cement is used to restore anterior teeth for aesthetic reasons.

2. Silicate cement powder is composed silica, alumina, and various fluxes. The liquid is composed of phosphoric acid and water.

3. Any two are acceptable: (a) One should keep the lid on containers of silicate cement liquid; (b) One should wipe the neck of the bottle containing the liquid every 2 or 3 days to get rid of phosphoric acid crystals that can cause the cap to fit improperly; (c) One should store powder and liquid sets together.

4. Four advantages of using silicate cement over metallic restorative materials are: (a) a desirable appearance of silicate cement, (b) an anticariogenic effect (contains and releases small amounts of fluorine to tooth's enamel), (c) silicate cement's low rate of thermal conductivity, and (d) the relatively easier mixing and manipulation offered by silicate cement.

   Four disadvantages of silicate are that it is: (a) brittle, (b) soluble in mouth fluids, (c) has low crushing strength, and (d) contracts somewhat on setting.

5. The steps in mixing silicate cement include: (a) preparing the equipment, (b) preparing the materials and (c) using an approved mixing technique. Your instructor will determine if you have used the proper equipment and technique.

   (a) Equipment: (1) obtain cool dry glass slab used only for mixing silicate cement, (2) a plastic spatula, (3) powder measuring stick.

   (b) Measure out preparation of correct shade of powder on glass slab. Using measuring stick, measure out 4 or 5 portions of powder. Using the statula, divide these portions into halves; then divide one of the halves into quarters, and one of the quarters into eighths. When the dentist indicates, place 2 or 3 drops of liquid close to the portions of powder and begin mixing.

   (c) Incorporate the large portion (the half) into the liquid, then the fourth, then the eighth, until the desired consistency is obtained. The mixing should not take more than one minute.

6. The dentist coats the newly placed filling with a silicate lubricant to prevent the exposure of silicate cement to air and mouth fluids to prevent staining of the restoration.

Instruction to Students
(Utilized in each DA and PA Module)

Instruction to Student: Using This Module

This module has been designed to let you, the learner, proceed at your own pace toward mastery of the material. Learning activities and opportunities to practice what you have learned are provided in a format which allows for individual or group participation. Should you be using this module in a classroom situation it is anticipated that your instructor will facilitate your learning by: observing your progress in developing skills that meet acceptable performance standards, being available to provide assistance and guidance as needed, or recommending further learning resources should you desire them.

This module is organized to help you become competent in a given area of study. In order to achieve this goal, the following sections are included in this module:

Introduction. A short paragraph or two will be given at the beginning of the module to acquaint you with the subject area to be covered and provide you with a rationale for the inclusion of this subject area in the program.

Objectives. This module is organized around a series of learning objectives. These objectives are stated to let you know exactly what behaviors will be expected of you for successful completion of the module. In other words, the objectives taken together define the competencies (skills, knowledge, or attitudes) which you will need to meet job requirements. If you achieve the stated competencies, you have successfully mastered the material. If you do not meet the competencies, you can go back and review the material or ask your instructor for additional assistance until you feel you have mastered the objectives. Objectives will be listed again, a few at a time, preceeding the learning activities relating to them.

Learning Activities. Following the set of objectives, you will find information on the subject matter required by the objectives. These learning activities may be in the form of textbook readings, diagrams, handouts, or narrative material.

Practice Exercises. After a section of learning activities you will find practice exercises. These exercises may take such forms as short quizzes, small group work sessions, role plays, or discussion. They are provided to give you an opportunity to interact with the material.

Key Terms. A list of key terms is provided at the end of the module to allow you further opportunity to review.

Module Test. This test can be used as both a pre-test and a post-test. After initially reading the objectives you may feel you already have competence in the subject area of the module. At this point you may wish to contact your instructor to discuss your learning alternatives. When using the module test as a post-test, it is important to note that each item on the module test corresponds to a like numbered item on the objectives list. Therefore, should you miss item #2 in the module test, the material for review would be found following objective 2 in the body of the module.

Section D: Field Testing Procedures and Module Revisions

FIELD TESTING PROCEDURES AND MODULE REVISION

Field testing and subsequent revision of modules is extremely important in assuring successful use of the competency-based approach to instruction. Revision in this project has been based upon data from the practice exercise responses, posttest answers, instructor responses to a module rating form, and student suggestions/comments from a variety of institutions where the curriculum was voluntarily field tested. With criterion-referenced testing, it is neither important nor meaningful to compare the total test scores of various students. Rather, the level of importance is the students' mastery of individual course objectives. Each learning activity and test item has been designed to teach and test particular objectives. If a test item indicated that a number of students were not mastering that skill or objective, the instructional developer assumed that the learning activities and/or the test item relating to that objective were not effective. The instructional developer then revised or replaced them.

DATA COLLECTION INSTRUMENTS AND PROCEDURES

During the development of the competency-based module format, an answer sheet was designed which would serve as the primary data collection instrument to be used with students. The answer sheet was constructed to provide not only space for students to write in their answers but to include any comments about the material which they wished to make. The other instrument of data collection consisted of the review questionnaire. This detailed form was sent along with the modules to the instructor involved in the field testing for him/her to fill out and return to OHRD. As mentioned earlier, this instrument also was sent to project advisors for use during their review of the modules.

The plan for field testing the modules involved 1) recruitment of sites 2) submission of an available modules list to the schools so that they could choose those which they wished to test, 3) use of the modules in the classroom or individually by students, 4) collection and forwarding of the answer sheets to OHRD for scoring and data tabulation, 5) collection of the instructor review questionnaires, and 6) return of the scored answer sheets to the school for grading purposes. Contact persons at each school were used to coordinate the field testing actitivies.

The field testing at the participating institutions was begun in the Fall of 1979. Single copies of the modules requested for testing at each site were sent to the institutions for their duplication. Also OHRD prepared a simple field test contract for the instructors to sign so that all involved were aware of the responsibilities and benefits agreed upon. In order to keep track of the various modules being tested at the various sites, a simple table was used.

Upon receipt of the answer sheets, the revision of the modules was undertaken. Data used in this revision process included 1) answer sheet data from practice exercises and module tests, 2) responses from project advisors to the review questionnaire, and 3) instructor responses to the review questionnaire.

The approach to revision was based upon the assumption that a high percentage of students in any class can learn required course objectives if they are given enough time and learning experiences that teach the competencies appropriately and effectively. In most situations, ninety percent of the students can be expected to master ninety percent of the objectives. The four methods we used and recommend be used to decide what to revise are as follows:

1) Error-rate data. The instructional developer collected the responses to each test and practice exercise item and revised any item that was not correctly performed with a high degree of accuracy.

2) Diagnostic-criterion Test. The instructional developer collected the responses to each test item and revised any learning activity material that was not leading to successful performance on the test item.

3) Student comments. Student comments on practice exercise and module test items were solicited in every case. Complaints as to ambiguity, lack of clarity, or any problem area were examined by the instructional developers and the source of the trouble was eliminated.

4) Instructor rating form. As part of the revision process, instructors utilizing the modules were given a rating form which asked specific questions about both the format and the content of the modules. Responses to these questions were obtained in a Likert format (i.e., the instructor responded on a scale from 1 to 6, where 1 equals poor and 6 equals excellent to indicate his/her perception of the materials) to facilitate statistical analysis of these important data. Areas shown to be poorly perceived by instructors as a group were revised by the instructional developers.

Changes included: content additions, deletions, or corrections; updating sources and information; substituting diagrams or pictures because of lack of clarity; and highlighting, outlining or charting for emphasis of important information.

It was deemed highly important to collect as much data as possible for the revision and validation process to have a significant level of success. Therefore, recruitment of field test sites was an ongoing process during most of the project period. It is felt by OHRD that the variety of institutions involved and the nationwide location of the sites provided a truly excellent range of responses to the converted/developed modules.

Although revision has been built into the modules as a result of the analysis and application of field test data, the competency-based learning modules format demands an instructor responsiveness not only to the changing needs and characteristics of students, but also to our changing society as a whole. In order to remain relevant, competencies must reflect the most current role of the Physician Assistant or Dental Assistant -- learning modules must teach him/her what will be expected in the job situation. Revision must be seen as an ongoing process and instructors should not be inhibited from changing the materials to better serve the needs of their students and their profession. There are four areas which need constant attention from instructors to insure that their educational offerings are timely and efficacious: the formulation and choice of objectives; the provision of alternative instructional activities, materials, and learning conditions; the revision of instructional design and materials; and the setting of climate and norms for the instructor-student relationship.

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Exhibits - Section D

Institutions Participating in Field Testing of Modules

INSTITUTIONS PARTICIPATING IN FIELD TESTING OF MODULES

Dental Assistant Programs

Central Piedmont Community College (North Carolina)
Kinman Business University (Washington)
Luna Vocational Technical Institute (New Mexico)
Maricopa Technical Community College (Arizona)
Northampton County Area Community College (Pennsylvania)
Pima Community College (Arizona)
Truckee Meadows Community College (Nevada)
Eli Whitney Vocational Technical School (Connecticut)
J. M. Wright Technical School (Connecticut)

Physician Assistant Programs

Alderson-Broaddus College (West Virginia)
Baylor University Medical School (Texas)
Bowman Gray School of Medicine of Wake Forest University (North Carolina)
Catawba Valley Technical Institute (North Carolina)
Cuyahoga Community College (Ohio)
Sheppard Air Force Base (Texas)
Emory University School of Medicine (Georgia)
Essex Community College (Maryland)
Medical University of South Carolina (South Carolina)
Mercy College of Detroit (Michigan)
St. Louis University Medical Center (Missouri)
State University of New York at Stony Brook (New York)
University of California, Davis (California)
University of Colorado Medical Center (Colorado)
The University of Nebraska Medical Center (Nebraska)
University of Utah College of Medicine (Utah)
Wichita State University (Kansas)

Rating Form Utilized for Professional Feedback on Modules

Module Rating Form

Module: ____________________

School Number: ____________ Instructor Number: ____________

A series of questions below ask for opinions of various aspects of this module. Please respond to each question by circling the appropriate number on the scale provided. If this module is rated as a one or two on any of the aspects covered, please explain why in the space provided after each question. Be as specific as possible. This will be of great assistance in guiding revision of the module.

1. Are the pretest items consistent with the stated objective?

1	2	3	4	5
No Consistency				Very Consistent

IF you rated this aspect of the module as a one or a two, please explain.

____

____

____

2. Is the introduction concise, interesting and clear?

1	2	3	4	5
Not at all				Very much so

IF you rated this aspect of the module as a one or two, please explain.

____

____

____

3. Are the objectives behaviorally stated?

1	2	3	4	5
Not at all				Very well stated

IF you rated this aspect of the module as a one or two, please explain.

____

____

____

4. Is there an appropriate mix of objectives (affective, cognitive, psychomotor)?

1	2	3	4	5
Very poor mix				Very good mix

IF you rated this aspect of the module as a one or two, please explain.

____

____

____

5. Is the order in which the objectives are stated appropriate?

1	2	3	4	5
Very inappropriate				Very appropriate

IF you rated this aspect of the module as a one or two, please explain.

____

____

____

6. Is the level of mastery stated in the objectives appropriate (100%, 90%, 80%)?

1	2	3	4	5
Very inappropriate				Very appropriate

IF you rated this aspect of the module as a one or two, please explain.

7. Are the criteria for judging acceptability of student pretest responses clear?

1	2	3	4	5
Not at all clear				Very clear

IF you rated this aspect of the module as a one or two, please explain.

8. Are the learning activity steps appropriate in size?

1	2	3	4	5
Very inappropriate				Very appropriate

IF you rated this aspect of the module as a one or two, please explain.

9. Do the practice items accurately measure learner mastery of objectives?

1	2	3	4	5
Not at all accurate				Very accurate

IF you rated this aspect of the module as a one or two, please explain.

10. Are the types of learning activities appropriate?

1	2	3	4	5
Very inappropriate				Very appropriate

IF you rated this aspect of the module as a one or two, please explain.

11. Is the material presented on the page in an interesting and clear manner -- liberal use of spacing, diagrams, charts, highlighting methods.

1	2	3	4	5
Not at all				Very well

IF you rated this aspect of the module as a one or two, please explain.

12. Are the instructions to the learner clear?

1	2	3	4	5
Not at all clear				Very clear

IF you rated this aspect of the module as a one or two, please explain.

13. Is the content of the module technically clear?

1	2	3	4	5
Not at all clear				Very clear

IF you rated this aspect of the module as a one or two, please explain.

____

____

____

14. Do the module posttest items accurately measure learner mastery of the stated objectives?

1	2	3	4	5
Not at all accurate				Very accurate

IF you rated this aspect of the module as a one or two, please explain.

____

____

____

15. Are the criteria for judging acceptability of student posttest responses clear?

1	2	3	4	5
Not at all clear				Very clear

IF you rated this aspect of the module as a one or two, please explain.

____

____

____

For each of the following questions please be as complete as possible in you answers. All information you provide to us is useful in making revisions in the modules.

16. Are any supplementary learning materials appropriate for this module? If so, please list relevent learning materials.

17. Would you have approached the teaching of this content differently? If so, what changes would you have made?

18. In terms of total course content is too much or too little emphasis placed on the content of this module? If the emphasis is inappropriate, please indicate what changes you would make.

19. If material was to be added to this module what would it be?

20. If material was to be deleted from this module what would it be?

21. What do you consider the especially good aspects of this module to be?

22. Do you believe that this module would prepare a learner to pass the section of the national examination concerning this topic? If not, what changes would you make?

23. Do you believe that this module would prepare the learner to be an entry level professional regarding this topic? If no, what changes would you make?

Section E:

Project Awareness : Coordination and Dissemination Efforts

PROJECT AWARENESS: COORDINATION AND DISSEMINATION EFFORTS

CURRICULUM DESIGN COORDINATION

In order to develop curriculum that would be timely and relevant to both the field of dental and physician assistant training, OHRD felt it was necessary to become acquainted with the current thinking in each field regarding job definitions, job competencies, training and admissions requirements, and other related issues. This goal was served by all the aforementioned contacts with each field in addition to regular interaction with Advisory personnel, and solicitation of feedback from other practitioners in the field.

Some of the information gained from contacts in the field of dental assistant training is best summarized in a review article by Lynne P. Hollister, RDH, MS in the journal, The Dental Assistant from July/August, 1980. Hollister (1980) lists the following points as emerging conclusions from her literature review:

1. The dental assistant's role has been broadly categorized.
2. The American Dental Association, American Dental Assistant Association, federal government and state practice acts hold separate and conflicting regulations for the training, education, and utilization of dental assistants nationwide.
3. Formal education is available for dental assistants but is not required by law.
4. The quality of dental assistants' services has been excellent. Furthermore, the use of expanded function dental auxiliaries (EFDA's) in training programs increases productivity and output of services.
5. The validity of results from surveys conducted to measure the attitudes of the dental profession toward the utilization of EFDA's is questionable.

6. Salaries of certified dental assistants do not differ from those of non-certified assistants; meaning that auxiliaries are not paid according to their experience and education, but according to their length of employment. Inadequate compensation by employers in any field contributes to termination of employment. Dental assistants should receive adequate compensation for their valuable contributions, to insure their continued service to the dental profession.

The field of dental assisting is, at present, in the midst of much controversy. In response to this situation, OHRD, utilizing the military materials available to it, made it a point to convert/develop the dental assistant curriculum on the basis of the most comprehensive competency standards. OHRD's search for area competencies has resulted in the compilation of an outline competency list for dental assistants which is provided for the user/instructor at the end of the Organization and Utilization Guidelines. A page of this list follows in illustration. In this way, OHRD has sought to aid the learner and the instructor with their search for appropriate materials and to make the OHRD converted curriculum flexible and responsive to the range of definitions of job duties in this field.

The field of physician assistant training is also marked by controversy. At present, available data show that there are widely divergent standards for admissions to physician assistant training programs. While both the American Association of Physician Assistants and the Association for Physician Assistant Programs are working toward a more unified definition of the role of physician assistant, there does not exist a widely accepted list of core competencies. In order to convert/develop a curriculum that would be applicable in a variety of training settings, OHRD undertook to develop its own competency list for the job of physician assistant. OHRD made a comprehensive list of physician assistant competencies, cross-referencing these by the source of the training materials. This list, given at the end of the Organization and Utilization Guidelines for the Physician Assistant Curriculum, will enable the user/instructor to determine where additional materials might be available for study in other areas of interest.

Given the limitations of the available military materials (e.g. incompleteness, military emphasis, sparcity of narrative), OHRD proposed to develop additional modules emphasizing topics with a behavioral science perspective in addition to converting those units which could be obtained from the military. It is hoped that this addition to the project would make a contribution to the field of physician assistant training by dealing with subjects which were not included in the more traditional materials, but which were of increasing relevance in dealing with patients in today's society.

In order to develop modules appropriate to the educational level and needs of participating students, OHRD tabulated the admission requirements from some 30 institutions offering physician assistant training. Previous college credit appeared to be the most important single asset for successful admission to a PA program. Half the institutions sampled required at least 60 semester hours of college level work before they would consider an applicant for their program. This does not take into account the increasing number of schools which offer a bachelor of science degree in physician assisting and which utilize the last two years of the four year college term as intensive training time. Two schools in the sample even required a baccalaureate before entrance into their program. Indeed, although some of the programs were housed in community colleges, none were subject to the usual "open door" policy found in such institutions. Admission standards were well defined, and often included the requirement of experience in some field of health care. In fact, almost all schools responding indicated that some experience in health care would be extremely useful in achieving entrance to the program. The largest portion of the sample responding showed one year as a minimum for entrance. Two years was the most experience required. All in all, it appeared that entry was highly competitive, placing the burden upon the student to prove that s/he was motivated and equipped to succeed in this profession.

As admissions requirements, institutions often listed specific prerequisite college level coursework. In order of most commonly required, these include: Chemistry I, Humanities (such as government, history, philosophy, etc.), English I, Psychology I, English II, Biology, Sociology, Chemistry II, Anatomy, Physiology, Mathematics, Biology II, Zoology, Psychology II, Microbiology, Anthropology, English III, Chemistry, III, Psychology III, Nutrition, Zoology II, Bacteriology, Physics, Mathematics II.

PROFESSIONAL MEETINGS PARTICIPATION

Ms. Nora Comstock of the OHRD staff attended the American Academy of Physician Assistants Convention in April, 1979. She made contact with various program directors around the country in addition to other module developers and persons on the Physician Assistant National Certification Board. Ms. Comstock was also introduced to all the program directors at their business meeting by Dr. Archie Golden who encouraged members to give the project every possible support.

The American Academy of Physician Assistants, the Association of Physician Assistant Programs, and the National Commission on Certification of Physician's Assistants jointly sponsored the conference on May 25-29, 1980, in New Orleans, Louisiana. Ms. Cheryl Owen, Associate Project Director, attended for OHRD and spoke with a wide range of participants to elicit their suggestions and support for the project. She distributed and made available a number of the promotional brochures developed in addition to lists of available modules and other general information about the project. In addition, she talked to a number of publishers about the possibility of publishing the converted materials. Ms. Owen also obtained a list of all PA directors and programs nationwide which was utilized in corresponding personally with each director during the Spring of 1980, and apprising them of the status of the PA modules.

The American Dental Assistants Association held an annual meeting in Dallas, Texas, during October, 1979. Dr. Barbara Mink, project director, was a presenter at this conference. (Program brochure following in Exhibits section). The text of this presentation was written in article format and submitted to the ADAA Journal, The Dental Assistant. The revised article will be published in the journal in the Fall of 1981 (Letter of article acceptance and article text following in Exhibits Section).

Exhibits - Section E

Stages of Concern of an Instructional Innovation:

A Self-Instructional Program Describing a
Method of Assessing the Impact of the
Conversion of Military Curriculum Materials
for Civilian Education Use

Introduction

The "Stages of Concern" Based Adoption Model is a system developed by Gene Hall at the Research and Development Center at the University of Texas at Austin to study and describe how organizations and individuals adopt changes. Hall and his associates have discovered that change takes place as a process, rather than an event, and that each individual goes through certain stages, each of which is characterized by specific questions or anxieties or uncertainties about the particular innovation.

The Concerns-Based Adoption Model (CBAM) makes several assumptions about change. It assumes that change:

- is a PROCESS, not an event.
- is made by INDIVIDUALS first, then organizations.
- is a highly PERSONAL experience.
- entails DEVELOPMENTAL growth in feelings and skills.

CBAM also assumes that intervention must be related to people first and the innovation second.

This material has been written to provide you with an introduction to the Concerns-Based Adoption Model. An understanding of how to use the system can prevent the inefficient and unsuccessful adoption of changes and the alienation which can result when expectations about changes are not met or delivered.

Objective

After going through this self-instructional program you will be able to identify statements or behaviors that are typical of each of the seven stages of concern in the Concerns-Based Adoption Model.

Overview of the Model

There are seven stages of concerns in the Concerns-Based Adoption Model. They are:

		Stages
highest	6	Refocusing
↑	5	Collaboration
	4	Impact/Consequences
	3	Management Mechanics
	2	Personal
↓	1	Information
lowest	0	Awareness

In the Awareness Stage (0) there is little concern about or involvement with the innovation. A typical expression of concern at level 0 about the innovation would be "I am not concerned about it (the innovation)."

The Information Stage (1) involves a general awareness of the innovation and interest in learning more detail about it. The person seems not to be worried about him/herself in relation to the innovation. S/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use. A typical expression of concern at level 1 about the innovation would be "I would like to know more about it."

In the Personal Stage (2) an individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the reward structure of the organization. There is also uncertainty about decision making and consideration of the potential conflicts with the existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected. A typical expression of concern at level 2 about the innovation would be "How will using it affect me?"

The Management Stage (3) is when attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost. A typical expression of concern at level 3 about the innovation would be "I seem to be spending all my time in paperwork."

In the Consequence Stage (4) attention is focused on impact of the innovation on persons in his/her immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and the changes needed to increase student outcomes. A typical expression of concern at level 4 about the innovation would be "How is my use affecting my students?"

The Collaboration Stage (5) focuses attention on the coordination and cooperation with others regarding use of the innovation. A typical expression of concern at level 5 about the innovation would be "I am concerned about relating what I am doing with what other instructors are doing."

In the Refocusing Stage (6) the focus is one of exploration of the more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. The individual has definite ideas about alternatives to the proposed or existing form of the innovation. A typical expression of concern at level 6 about the innovation would be "I have some ideas about something that would work even better."

Figure 1 presents the seven stages of concern along with examples of typical expression of concern about the innovation. Figure 2 summarizes the issues at each of the seven stages of concern.

We will now discuss each stage of concern in more detail and provide opportunities for you to assess your understanding of each of the stages. The answers to these self-assessment exercises are presented at the end of this booklet.

Figure 1

STAGES OF CONCERN:

TYPICAL EXPRESSIONS OF CONCERN ABOUT THE INNOVATION

		Stages of Concern	Expressions of Concern
impact	6	Refocusing	I have some ideas about something that would work even better.
	5	Collaboration	I am concerned about relating what I am doing with what other instructors are doing.
task	4	Impact/ Consequence	How is my use affecting my students?
	3	Management Mechanics	I seem to be spending all my time in paperwork.
self	2	Personal	How will using it affect me?
	1	Information	I would like to know more about it.
	0	Awareness	I am not concerned about it (the innovation).

Figure 2

STAGES OF CONCERN ABOUT THE INNOVATION*

0 AWARENESS: Little concern about or involvement with the innovation.

1 INFORMATION: A general awareness of the innovation and interest in learning more detail about it. The person seems not to be worried about him/herself in relation to the innovation. S/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.

2 PERSONAL: Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the reward structure of the organization. There is also uncertainty about decision making and consideration of the potential conflicts with the existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.

3 MANAGEMENT MECHANICS: Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.

4 IMPACT/CONSEQUENCE: Attention focuses on impact of the innovation on persons in his/her immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and the changes needed to increase student outcomes.

5 COLLABORATION: The focus is on coordination and cooperation with others regarding use of the innovation.

6 REFOCUSING: The focus is one of exploration of the more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. The individual has definite ideas about alternatives to the proposed or existing form of the innovation.

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*Original concept from Hall, G.E., Wallace, R.D., Jr., & Dossett, W.A. A Developmental Conceptualization of the Adoption Process Within Educational Institutions. Austin: Research and Development Center, The University of Texas, 1973.

Stage of Concern 0 - Awareness

Individuals at the awareness (0) stage of concern are not familiar with the change, and so they are usually neutral about it. The challenge in dealing with individuals at this level is to present the innovation to them positively. Affect, or attitude, is crucial. After all, we want their growing awareness to be a positive one -- "Hey! This could really be an exciting challenge!" -- rather than negative -- "That's too complicated, and I'm not going to spend the time it will take to learn it." Individuals at the awareness stage are fairly easy to recognize. They respond with various verbal and nonverbal indicators of lack of knowledge of the name of the innovation and its components. If someone is not even aware that such a thing as a Project on Conversion of Military Materials exists, s/he will usually tell you or exhibit behavior that makes his/her lack of awareness fairly obvious (e.g., "What's that?"). Often individuals are uncomfortable with their lack of awareness and need to know that it's alright for them to be unaware of this new idea.

Exercise 1

Place a check beside each statement or behavior that is typical of an instructor with awareness concerns.

1. _____ "Could I see your notes on the new project from our last meeting?"

2. _____ "What are you talking about?"

3. _____ "This might be a stupid question, but what is this Conversion Project all about?"

Stage of Concern 1 - Information

Persons at the information level describe concerns generally in the following terms:

> "I don't know what this Conversion Project is all about. Specifically what is a quantifiable objective? They tell me I must look at what the outcomes are before I commit to achieving them. How do I do that? I need definitions, and I need to know how the project differs from what I'm already doing. Are there some materials I can read? Is there a sample I can look at?

Some of the behaviors associated with the information stage are:

Asking for definitions

Asking for examples of Conversion Project modules

Asking for help in getting started, wanting general overview material

Exercise 2

Place a check beside each statement or behavior that is typical of an instructor with information concerns:

1. _____ "I never heard of it."
2. _____ Asks for reading materials on the subject.
3. _____ "I'm afraid I'll never understand this."
4. _____ Volunteers to attend an in-house seminar.
5. _____ Asks to duplicate an article containing definitions of terms.
6. _____ Sends for sophisticated material on competency based instruction.

Stage of Concern 2 - Personal

Instructor at the personal stage of concern might say something like this:

> "I've never been very good at writing objectives. Now they want me to try using individualized modules! Are we going to be monitored? What will happen if I don't do it well? It makes me nervous to have somebody looking over my shoulder. I don't want to look unorganized in front of my students. I'm comfortable with my old method; why should I have to change to a new one?"

The behavioral clues all have to do with the instructor's fears and insecurities about his/her personal use of the innovation. Hence the statements are often tied to role, how s/he sees him/herself and ways to meet personal needs and objectives.

"What will happen to me if I can't do it?"

"I don't want to make a fool of my myself."

"I can't see how this is going to help my career any."

"Do we get any extra money for doing this?"

"Why is the administration interested in my doing this?"

"What's in it for me?"

Exercise 3

Place a check beside each statement or behavior that is typical of an instructor with personal concerns.

1. _____ "Who is going to see my modules?"
2. _____ "I don't have time to do regular preparation on top of all the other extra work I have to do at the end of the month."
3. _____ "How are my students going to react to having to evaluate their own results in front of me?"
4. _____ "I don't like this form at all. It doesn't reflect the situation in my course. I can make it more relevant."
5. _____ "This new idea seems like something the administration is really pushing. I wonder what they're up to?"
6. _____ "I'm afraid I won't be able to stand the change required."

Stage of Concern 3 - Management Mechanics

An instructor with management mechanics concerns will exhibit the following types of behavior:

> S/he will have difficulty keeping up with routine maintenance activities like keeping records on progress, etc., or will complain that all the paperwork is making it impossible to get the work done on time. For example, a person may complain of a lack of expertise in using the forms required; s/he says s/he cannot maintain an even flow of teaching while using the modules at the same time. It is the managing of new activities that seems to preoccupy the person.

Some typical descriptors for the management mechanics stage are:

1. Frustration with forms, physical arrangement, timing considerations, etc.
2. Plans one module at a time because s/he is unable to anticipate needs.
3. Is concerned about having time to fit everything in.
4. Worries about becoming efficient at operating the new system.
5. Is impatient because s/he must constantly refer to a chart, a guide, or terminology explanation.

Exercise 4

Place a check beside each statement or behavior that is typical of an instructor with management mechanics concerns:

1. _____ "I'm not sure that these modules will be the best way to evaluate the performance of my students."

2. _____ "How can I be sure I don't give a student the same feedback twice?"

3. _____ "I can't decide how to integrate this activity with the rest of my work."

4. _____ "I'm ready to try something else. I am looking for a better method for evaluating student progress!"

Stage of Concern 4 - Impact/Consequence

An instructor who is concerned about impact or consequences has shifted the center of things. That person is now more concerned with the effects of the innovation on persons other than him/herself.

The comments and behaviors of such an individual may sound similar to those of an individual with personal or management concerns, but the emphasis is always on the consequences for the student:

> "How will this new program affect my students? We need to be very careful to manage it so that they don't feel threatened. I want to develop an evaluation technique for my modules so I can get student reactions."

Exercise 5

Place a check beside each statement or behavior that is typical of an instructor with consequence concerns:

1. _____ "I would like to know what resources are available to us if we adopt this innovation."

2. _____ "I am revising my module evaluation process because students seemed to be having trouble understanding it."

3. _____ "How can I handle 80 students in this new way?"

4. _____ "I believe in spending the first several class sessions getting students excited about this course and feeling good about themselves. I've found that modules come much easier later if I start the process this way."

5. _____ "I spend three-fourths of my time in conference with students! I don't have time to do any of the rest of my work."

Stage of Concern 5 - Collaboration

An individual with collaboration concerns wants to share concepts with other instructors. This person trades data with other instructors and shares methods which have made the innovation more effective. S/he offers to participate in seminars and "buzz sessions" held to discuss the innovation. Instructors at this level are relatively easy to recognize. However, it is important to be careful not to confuse the frantic unorganized instructor with personal or management concerns who asks for help from a more experienced instructor with a person who really wants to collaborate. The former individual is looking for help which will keep him/her from sinking; the latter, a reciprocal benefit.

Exercise 6

Place a check beside each statement or behavior that is typical of an instructor with collaboration concerns:

1. _____ "How do you ever keep a record of which students have achieved which objectives?"

2. _____ "I'd like to suggest that we form a special task force of this department to share our objectives to try to develop a total function model that uses the best from each individual course."

3. _____ "May I attend a meeting on this Conversion Project? I'd like to know more about it."

4. _____ "I'd like to present a paper on our instructional approach using modules at the next professional conference to see how others respond to it."

5. _____ "How would you like to team teach with me next term in our new course? Maybe we can improve what each of us is doing?"

Stage of Concern 6 - Refocusing

An instructor at the refocusing stage of concern is almost ready to move on. This person is searching for a better way. S/he has evaluated his/her use of the innovation, made changes to improve it, and is now thinking of either making major changes or of trying something altogether different.

Some typical behaviors at the refocusing stage might be:

--asking for literature on a related or different innovation

--deciding to merge the innovation with another practice

--changing a fundamental element of the innovation

Exercise 7

Place a check beside each statement or behavior that is typical of an instructor with refocusing concerns:

1. _____ "Students do not seem to like the module approach to laboratory work so I'm planning on more problem-solving sessions."

2. _____ "I have had it with these forms! It's impossible to keep them up-to-date. There's got to be another way."

3. _____ "I'm not sure that my modules are getting my ideas across. I heard about a short course in "Revising Instructional Materials." I'd like to know more about that; think I'll attend."

4. _____ "I realize objective setting is an important part of the approach but I'm thinking about not doing it for one of my modules. It may not be really effective, but I won't know it if I don't try."

5. _____ "I'm not interested in attending a meeting on the Conversion Project. I've heard that these modules are expensive and don't work anyway."

Implications for Administrators*

Use of the Concern's Based Adoption Model has several implications for the administration of the institution. Attention to these implications can facilitate the change effort:

The implementation of innovations must be viewed as a process, not as an event. Seven distinguishable stages of concern about the innovation have been described. Concerns, in general, move from the initial "What is it?" "What does it mean for me?" to management and, ultimately, to impact concerns. Therefore, institutions planning for and facilitating a change need to plan on an extended period of involvement rather than designing a single highly concentrated pre-use or early-use workshop. Development activities need to be spread out and paced according to the development of concerns. Even the best instructional development activities will have little effect if they are delivered at a time when the instructors are not asking the right questions.

Instructional change is a personal experience. Instructors, lab personnel, students and administrators all have identifiable concerns about an innovation. These concerns will vary in their intensity and duration, depending on many factors, including the timing and relevance of development activities. One way to personalize this development is to present activities that address the relatively intense instructor/student concerns.

Personal concerns are a legitimate part of the change process. It is okay to have personal concerns. It is normal to have real concerns about the implications of a change for "me." We all have personal concerns sometimes and management concerns at other times. Administrators need to anticipate, legitimize, and accommodate the personal concerns of instructor and students as they approach changes.

If you or your group are new to the system, then change itself will be seen as an innovation. Students and instructors will have concerns about instructional development that can be related to the various stages of concern. Struggling for legitimacy and credibility with a group obviously means having different concerns than would be typical for administrators who have an established record for successes.

Concerns cannot be manipulated. Concerns need to be accepted for what they are, indicators of where a person is spending his/her energy. Attempts to manipulate people so that they will have a certain stage of concern (e.g., Stage 4) will likely only increase personal and management concerns. Telling an instructor "Your self concerns are too high. I want you to shape up and have impact concerns," will only increase the intensity of personal concerns. Facilitating the resolution of lower stage concerns, however, may allow higher stages to become more intense.

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*From Gene E. Hall, "The study of teachers' concerns and consequent implications for staff development." Staff Development Newsletter (Spring 1978), p. 9.

Summary

For those of you who have implemented innovations and/or worked with others to assist them in implementing an innovation, these statements in this booklet are very familiar. Perhaps, you may notice that many instructors you work with express several of these concerns simultaneously. Actually, all of us have all of these concerns at any given time about an innovation, but usually the major concern is most intense. It is the concern most likely to be affecting our behavior.

The "Stages of Concerns" model is perhaps most helpful to administrators when they think about four major issues of the "Stages of Concerns" model research:

1. The Stages of Concerns are a developmental sequence. An individual or organization must resolve the pertinent issues at any one stage in order to move to the next.

2. We cannot force individuals within the institution to move through the sequence, but we can assist them by providing the type of information and support that is relevant to each stage.

3. Each stage is necessary to eventual implementation and is neither good nor bad.

4. Higher is not necessarily better; it probably just means longer use of the innovation.

Answer Key for Practice Exercises

Exercise 1 (Stage of Concern 0 - Awareness)

1. ____ This person is seeking information about a project of which s/he is already aware of.

2. __X__ Person is at awareness level, has not heard of innovation.

3. __X__ Person at awareness level.

Exercise 2 (Stage of Concern 1 - Information)

1. ____ Clearly this is a person at the awareness level since s/he may have not yet heard of the innovation.

2. __X__ This person is seeking information about the innovation.

3. ____ The key word for us in this statement is "afraid." This tells us the person is having personal concerns.

4. __X__ Requesting more information - particularly introductory information - again tells us the stage.

5. __X__ Again, this person has information concerns.

6. ____ The key word in this statement is "sophisticated." This suggests that the individual has consequence concerns since s/he is looking for more advanced material.

Exercise 3 (Stage of Concern 2 - Personal)

1. __X__ This person is voicing personal concerns since his/her concern is over his/her position or role and how it might be affected by the innovation.

2. ____ This person has a management concern since s/he is having difficulty coordinating the innovation into the normal routine.

3. ____ A concern for the effect of the innovation on students is a consequence concern.

4. ____ This desire to adapt and refine existing elements of an innovation to make it better ("more relevance") for students reflects a consequence concern.

5. __X__ Again, like number 1, this instructor is concerned about the potential personal rate implications of implementing the innovation.

6. __X__ A concern that s/he will not find the new process well suited to his/her personal style makes this a statement of personal concern.

Exercise 4 (Stage of Concern 3 - Management Mechanics)

1. ____ A concern for the consequences of the innovation on students marks this statement.

2. X This instructor has a management concern since s/he is concerned about the way s/he has to organize to implement the innovation.

3. X Management concerns also relate to handling the techniques of elements of an innovation. This person is having difficulty merging two parts of an innovation.

4. ____ Searching for new alternatives after using an innovation characterizes the person with refocusing concerns.

Exercise 5 (Stage of Concern 4 - Impact/Consequence)

1. ____ The need for resources is perhaps not as important in this statement as the need for a guarantee before implementing the innovation. Hence, this statement reflects a personal concern.

2. X Revision based on student needs reflects a consequence concern.

3. ____ The frustration and implicit plea for help in this statement indicates a management concern.

4. X Again, revision is based on observed effectiveness (consequences) of the innovation in helping employees.

5. ____ The need for time to handle the basics of the innovation is a management concern.

Exercise 6 (Stage of Concern 5 - Collaboration)

1. ____ This statement reflects the concern of the individual looking for help from another instructor in managing the innovation.

2. X More certain of the positive results of the innovation, this person now wants to collaborate with others to improve the innovation even further.

3. ____ This individual is still getting acquainted with the innovation so the concern is for more information.

4. X Again, this individual is so excited about the innovation that s/he wants to share it (collaboration) with others.

5. X Team teaching, by itself, may not involve a real collaboration concern; but when tied to a concern to improve use of the innovation it does.

Exercise 7 (Stage of Concern 6 - Refocusing)

1. _____ Consequence concern.

2. __X__ This individual is ready to try a new approach. Concern is a refocusing away from the innovation.

3. __X__ Refocusing usually includes a search for related alternatives to the innovation.

4. __X__ Many times an individual will change a major element without discontinuing use of the innovation. Nevertheless, this change has involved a major shift or refocusing in how the individual views the innovation.

5. _____ An awareness concern.

Professionals Utilized In
PA/DA Military Conversion Project

PROFESSIONALS UTILIZED IN PA/DA MILITARY CONVERSION PROJECT

Charles Arnett, M.D.	Medical Director, Physician Assistant Program Alderson-Broaddus College West Virginia
Anna Arnette	Pharmacist, Texas
Beulah M. Ashbrook, Ed.D.	Director of Education, American Society of Health Professions (1st year of project), Health Materials Consultant (2nd year of project) Washington, D.C.
DeWitt Baldwin, M.D.	Assistant Dean, University of Nevada School of Medicine Nevada
Don Bass, Ed.D.	Director of Education Development, College of the Mainland Texas
Lucy Brajevich, CDA	Director, Dental Assistant Program Pima Community College Arizona
Betty Burr, CDA	Director, Dental Assistant Program J. M. Wright Technical School Connecticut
Elaine Chaykin, FNP, MHS	Director, School of Medicine Sacramento Medical Center California
Nancy Cise, M.A.	Nutritionist, Texas Department of Health Texas
James O. Clark, DDS	Head, Dental Assistant Program Central Piedmont Community College North Carolina
Robert G. Clarke, DDS	Director, Dental Assisting Northampton County Area Community College Pennsylvania

Nora de Hoyas Comstock, Ph.D. Candidate	Education Development Specialist, Texas
Robert H. Curry, M.D.	Director, Division of Allied Health Professions, Emory University School of Medicine Georgia
Barbara Davis, M.S.S.W.	Social Worker, Psychotherapist Texas
Charolette Dees	Medical Ethics Specialist, Texas
James P. Desantis, Lt. Colonel, USAF, MC	Course Supervisor, Physician Assistant Program Sheppard Air Force Base Texas
Jesse Edwards, Ph.D.	Assistant Director, Physician's Assistant Program University of Nebraska Medical Center Nebraska
Carl Fasser	Coordinator, Physician Assistant Program Baylor University Texas
Mary Fillingham, CDA	Director, Dental Assistant Program Maricopa Technical Community College Arizona
Maryann Fisher, M.S.	Social Service Research Associate, University of Texas Texas
Daniel Fleisher, M.D.	Associate Dean for Curricula Affairs, Medical College of Wisconsin
Harriet Gales, M.A.	Associate Professor & Program Director, Physician Assistant Program Mercy College of Detroit Michigan
David Garfield	Radio/TV/Film Specialist, Texas
John Gladfelter, Ph.D.	Psychologist in private practice, also degree in Medical Lab Technology Texas

Stephen C. Gladhart, Ed.D.	Program Director, Physician Assistant Program College of Health Related Professions Kansas
Archie Golden, M.D.	The John Hopkins University Maryland
Arlene Granderson	Physician Assistant Consultant, U. S. Department of Health & Human Services Maryland
Margaret Haddad, M.S.	Instructional Design Specialist, Maricopa Community College Arizona
Joyce Hamilton, M.Ed.	Adult Education Specialist, Texas State Hospital Texas
Patricia Hampton, CDA	Director, Dental Assistant Program Truckee Meadows Community College Nevada
William H. Holloway, M.D.	Psychiatrist in private practice, California
Bruce Hulbert, Ph.D.	Private Consultant in Medical Education, Washington
Bernadette Jojola, CDA	Chairperson, Dental Assistant Program Luna Vocational Technical Institute New Mexico
Katherine D. Kaminski, PAC, MA	Director, Physician Assistant Program Essex Community College New Jersey
Lois Kryger	Dental Assisting Consultant, U. S. Department of Health & Human Services Maryland
Ann Linquist, BA	Instructional Development Specialist and Technical Writer, Texas
Linda L. Lorien, BA	Handicapped Specialist, Texas State School for the Deaf Texas

Virginia McFarlane, Ed.M., PA-C	Instructor, Physician Assistant Program Bowman-Gray School of Medicine North Carolina
Lucille H. Messier	Acting Chairperson, Department of Physician's Assistant Ed. University of New York -Stony Brook New York
Tony Miller, PA	Coordinator, Physician Assistant Program Cuyahoga Community College Ohio
Barbara P. Mink, Ed.D	Instructional Material Specialist, Project Director Texas
Oscar G. Mink, Ed.D.	Licensed Psychologist & Instructional Material Specialist, University of Texas at Austin Texas
Beverly Moore, Ph.D. Candidate	Sociologist & Handicapped Specialist, Texas
Virginia M. Moore, M.D.	Assistant Professor of Pediatrics, University of Colorado Medical Center Colorado
Douglas Mould, Ph.D.	Clinical Psychologist, Texas
Michelle Moya	Pharmacy Technician, Texas
Lynn Mureen, RDH	Director, Dental Program Eli Whitney Vocational/Technical School Connecticut
Peg Nash	Counselor & Program Specialist, The University of Arizona Arizona
Karyn Newby	Director, Dental Assisting Kinman Business University Washington
Cheryl S. Owen	Assistant Project Director, Texas

Keith Owen, Ph.D.	Physiologic Psychologist, Chairperson Division of Human Growth & Development Austin Community College Texas
W. Ward Patrick, M.D.	Instructor, Bowman-Gray School of Medicine North Carolina
Don M. Pedersen, PA-C/M.S.	Training Coordinator, Utah Medex Project University of Utah College of Medicine Utah
Jimmie Pharris, Ph.D.	Director, Physician Assistant Training Program Bowman-Gray School of Medicine North Carolina
Vicki Phyler, PA	Instructor, Physician Assistant Program Catawba Valley Technical Institute North Carolina
Diane Ragsdale	Research Associate, Baylor Medical University Texas
William Religo, PA-C	Assistant Program Director, Physician Assistant Program Wichita State University Kansas
Nanci C. Rice, RPA-C	Didactic Coordinator, State University of New York at Stony Brook New York
John E. Roueche, Ph.D.	Director Community College Leadership Program University of Texas at Austin Texas
Jennie Schafer, CDA	Representative for American Dental Assistants Association Oregon
Lenora Scott, A.A.	Graphic Artist, Texas
Carter A. Sinclair, M.D.	Director, Physician Assistant Program Catawba Valley Technical Institute North Carolina

C. Ed Smith, Ph.D.	President, Health Policy Analysis & Accountability Network, New Mexico
Charlotte Smith, Ed.D.	Education Specialist, American Technological University Texas
Linda Smith, M.S.	Research Specialist, Texas
Rowena Sobczyk, M.D.	Director, Physician Assistant Program Medical University of South Carolina South Carolina
Jane Son, Registered Nursing Student	Instructional Materials Designer, Armed Forces Texas
Carolyn Thompson, M.A.	Technical Editor, Texas
Terry Thompson, Ph.D.	Technical Editor, Texas
Helen Tuchner, CDA, RDA	Representative from American Dental Assistants Association, Minnesota
Charlotte Unger	Clinical Lab Technician, Texas
David W. Wagner, PA-C	Director, Physician Assistant Program St. Louis University Medical Center Missouri
John C. Watson, D.D.S.	Dentist in private practice, Texas
Donna Sue Wells, CDA	Dental Assistant, (employed in private dental office) Texas
Claire Williamson, CDA	Representative of American Dental Assistants Association, Georgia
Vicki Woods, M.A.	Sociologist & Instructional Design Specialist, Austin Community College Texas
Barbara J. Wilkerson Zechner, Ph.D. Candidate	Media & Instructional Design Specialist, Texas

Script for Slide/Sound Presentation:
The Conversion Process for Military Training Materials

Script for Slide/Sound Presentation
The Conversion Process for Military Training Materials

Script Narrative

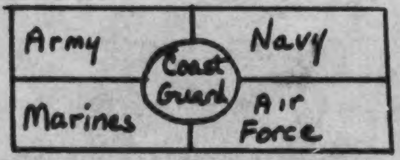
THE CONVERSION PROCESS FOR MILITARY TRAINING MATERIALS

A PROJECT TO CONVERT ARMED SERVICES DENTAL ASSISTANT AND PHYSICIAN ASSISTANT MATERIALS TO CIVILIAN COMPETENCY-BASED CURRICULA

FROM THE
UNITED STATES EDUCATION DEPARTMENT
OFFICE OF VOCATIONAL AND ADULT EDUCATION

UNDER A CONTRACT WITH
ORGANIZATION AND HUMAN RESOURCE
DEVELOPMENT, INC., AUSTIN, TEXAS

⑤The Dept. of Defense and the U. S. Coast Guard have successfully trained personnel in many different vocational areas. The training materials used in these programs ⑥ are of particular interest to the U. S. Education Dept. as this agency seeks to improve research and development of instructional methods for vocational education. USED is carrying out a ⑦ Congressional mandate which has indicated a need for more efficient use of the funds legislated in the Vocational Education Act of 1963 and amended in 1968. ⑧ As initial development costs for many job training programs have already been borne by the Armed Services, such programs are



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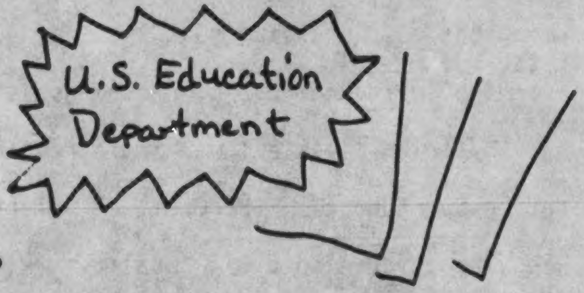

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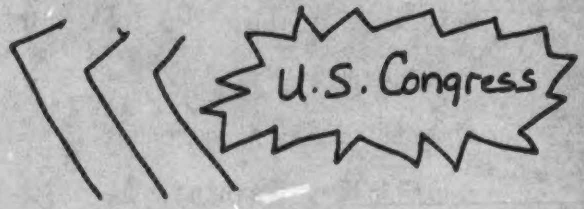


7

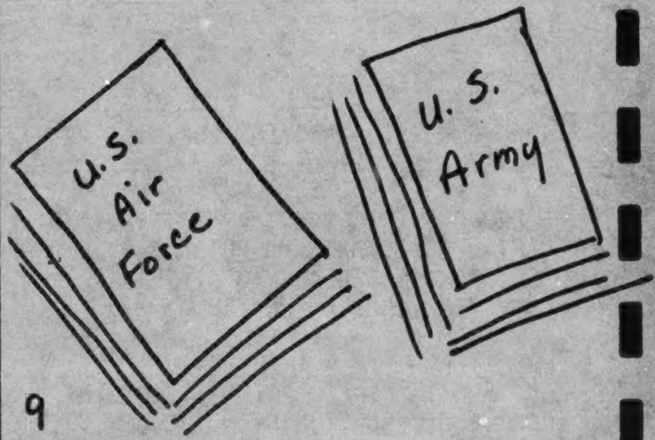
Military Classroom Scene

8

a potential resource for contributing to Vocational education and career training in the public sector.

Through the granting of funds, the U. S. Education Dept. has begun to convert existing Armed Service training materials into civilian curricula. In an initial USED project, ⑨ a system was developed for the indentification, acquisition, evaluation, and dissemination of those Armed Services Curriculum materials which could be used in vocational education. It was further determined through a needs assessment survey that ⑩ job training for physician assistants and dental assistants were among the most pressing education needs. ⑪ Training in the careers of dental assistant and physician assistant was in increasing demand by students. ⑫ The Dept. of Defense had already developed high quality training materials in these two areas for the Armed Services.

⑬ A contract based on competition to convert the military training materials for dental assistants and physician assistants to civilian competency-based modules was awarded. A project staff of product



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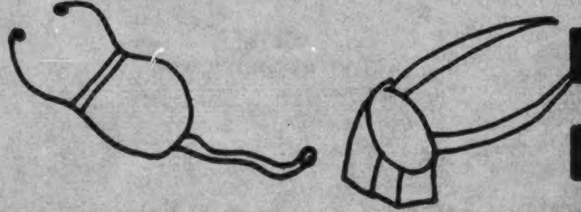

10

DA-PA Instruments

Students - High School

11

DA at work | PA at work

12

Contract

13

developers and curriculum experts began the process of conversion. Military materials for training dental assistants and physician assistants would ⑭ undergo a revision and development process to convert them to competency-based modules useful in civilian vocational education. ⑮ Different military training program materials for dental and physician assistants were available from various branches of the Dept. of Defense and the Coast Guard. ⑯ To obtain the materials the conversion project staff worked closely with USED who acted as liaison between the project and Armed Services. While the conversion materials were being located and duplicated, the ⑰ project staff began a nationwide search for similar exemplary educational materials in the civilian sector to use for comparison purposes. Outstanding physician assistant and dental assistant instructional materials were located and purchased. ⑱ Institutions offering programs in these fields were asked for instructional objectives, course outlines, reference lists, and major textbooks. A search was also begun to find the most complete listing of practitioner competencies

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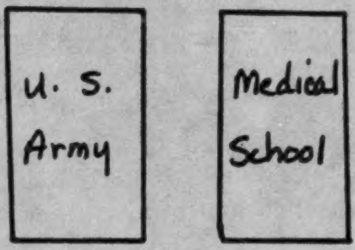
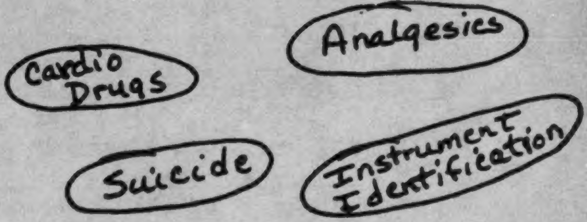
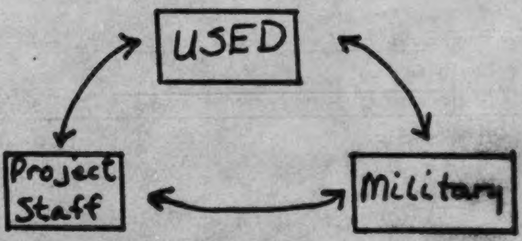

U. S. Army
Medical School

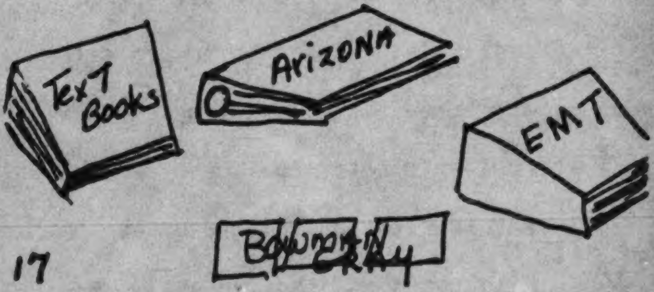
15


Cardio Drugs
Analgesics
Suicide
Instrument Identification

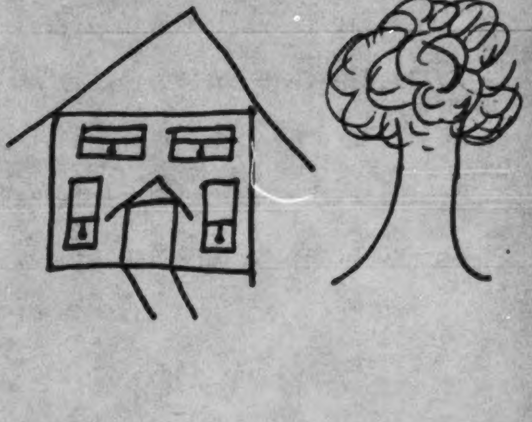
16


USED
Project Staff
Military

17

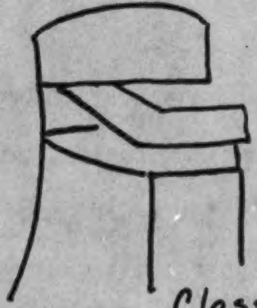

Text Books
ARIZONA
EMT
Bowman Gray

18



in each field. ⑲ The project staff was dedicated to converting the military materials in such a way as to insure that future students would learn the tasks and skills they would need to fulfill their role on the job.

⑳ The staff went to professional associations and content area specialists to find out their opinions on existing instructional materials and the instructional needs of these two fields. Valuable support for the project and the materials to be converted was generated in this way. ㉑ Opinions of national leaders in the field were obtained on the best way to insure use of the converted materials. ㉒ Finally, the project staff contacted state licensing and certification bodies to determine their requirements for and expectations of graduates in these fields. Although the licensing exams were not publicly available, everything was done to insure that the curricula would meet the basic standards of the states requirements. While the acquisition of the Armed Service and other relevant materials went on, ㉓ the project staff was also involved in the design of the modular format. ㉔ Each staff member was experienced with the basics of competency-



19 Classroom

American Academy of Physician Assistants

American Dental Assistants Association

20

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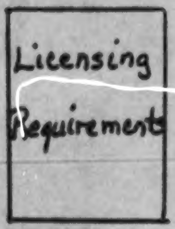

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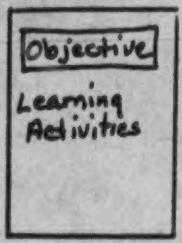

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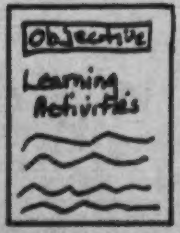
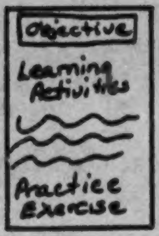


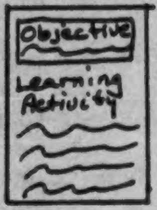
24 144

based instructional design and possessed the required skills to write behavioral objectives to test appropriate cognitive, affective, and psychomotor skills; ㉕ how to insure mastery of the material through frequent practice items and immediate feedback; ㉖ how to sequence the material in a series of small steps upon which to build new knowledge; and how to write test items in order to accurately measure learner mastery of stated objectives. ㉗ Each module includes an introduction or rationale, prerequisites as required, behaviorally stated objectives, learning activities and narrative, practice items, key terms, and a posttest. ㉘ The modules were designed for class use, but were organized to make it possible to use them on an individual basis also.

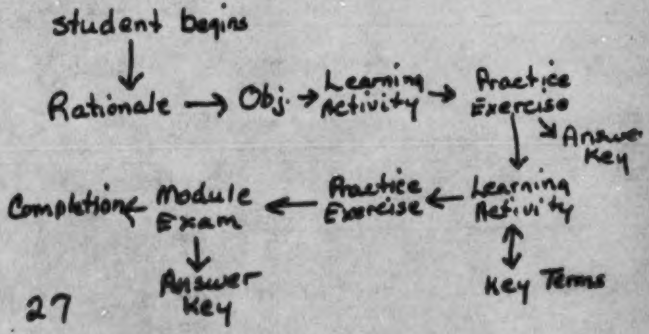
㉙ Once the military materials were received, they were compared with civilian programs for quality, completeness, and relevance. ㉚ As conversion proceeded, material was added or deleted to make the content of each module current. ㉛ Some shift in emphasis was often needed, as the military materials were strong in many areas of limited use in a civilian practice.


Objective
Learning Activities
Practice Exercise

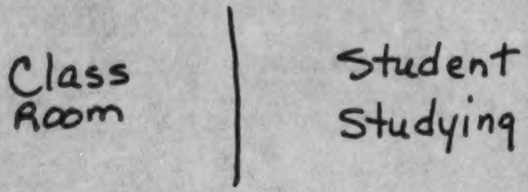
25


Objective
Learning Activity

26


Student begins
Rationale
Obj.
Learning Activity
Practice Exercise
Answer Key
Learning Activity
Key Terms
Practice Exercise
Module Exam
Answer Key
Completion

27


Class Room
Student Studying

28

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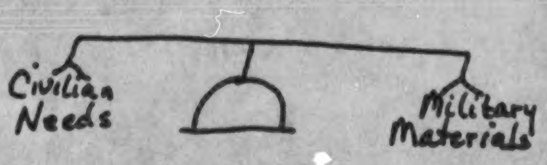
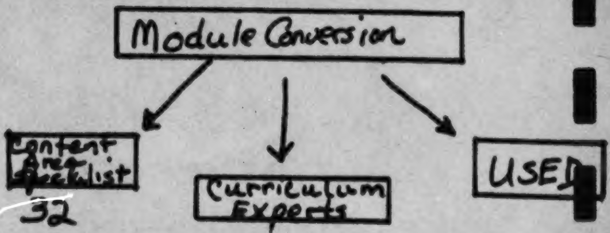
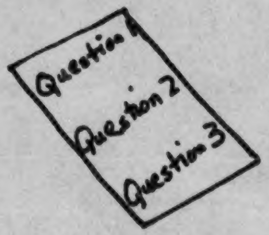

Civilian Needs
Military Materials

31

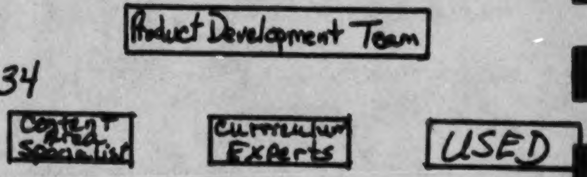
㉜ Draft modules were then sent for review to an Advisory Board of content area specialists, curriculum experts, and to the U. S. Education Dept. ㉝ A list of Review Questions was attached in order to document comments on every aspect of the drafted product - from well written objectives to accurate content, from clear test items to appropriate organization. ㉞ Constant feedback from the field insured the relevancy and increased the awareness of this emerging series of modules. ㉟ The second phase of the process of converting Armed Service training materials into civilian instructional modules concerned the field testing and validation of the drafted modules. ㊱ Content validation was designed to be undertaken in classes using both public and private institutions. ㊲ A voluntary population of students and instructors for each of the two curriculum areas was secured. ㊳ For testing the dental assistant modules, public community colleges and private proprietary schools were enlisted. ㊴ The physician assistant modules were validated in the settings of private medical schools and public community colleges. ㊵ Instructors at these sites were provided with a list of the modules to be field-tested and


Module Conversion
Content Area Specialist
Curriculum Experts
USED

32


Question 1
Question 2
Question 3

33


Product Development Team
Content Area Specialist
Curriculum Experts
USED

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35

Students in a Classroom Setting

36

Volunteer Students

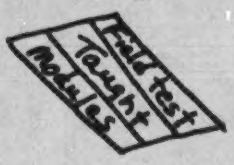
37

Community College

38

Medical School

39


Field test
Taught
Modules

40

were requested to select those which they wished to use in their classes. ㊶ An initial visit by one of the project staff facilitated any problems in initiating the field test procedure. ㊷ A follow-up visit was planned where appropriate.

㊸ The modules for each program were tested under on-going class conditions. As modules were completed, the ㊹ evaluation instruments were filled out and forwarded to the project staff for analysis. Instruments used in the validation process included a ㊺ Revision Data Sheet which served as the module test answer sheet. This form gathered ㊻ both module achievement data and allowed room for student comments on any ambiguity or short-comings in the material.

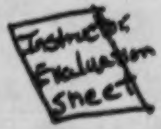
㊼ An Instructor Rating Form was provided. ㊽ The instructor was asked specific questions concerning every aspect of the module--its content and format--and was given a place to comment on any low ratings s/he assigned the material.

㊾ Analysis of data consisted of initial content analysis of all comments in order to develop a coding system for statistical analysis of the responses. ㊿ The error rate per question

41

42

43 Students Taking Tests

44


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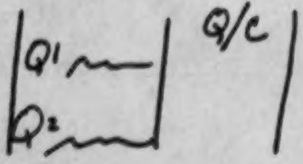
Revision Data Sheet

46


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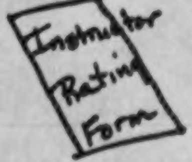

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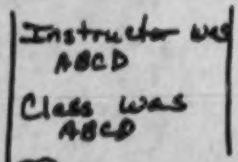
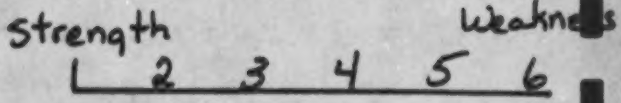


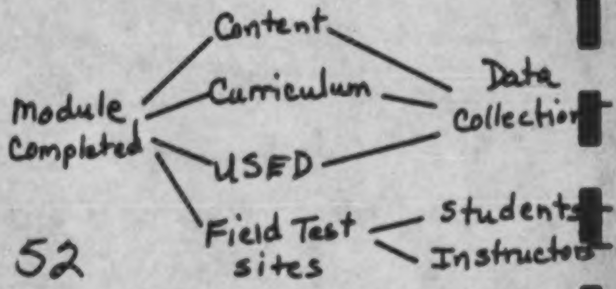
49

✓ Module A = good learning
X Module B = lack of learning
50 ✓ Module C = good learning

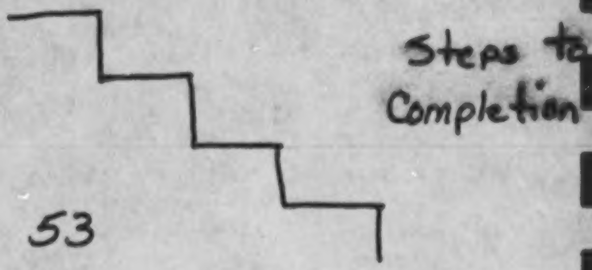
was calculated to discover which sections of the module and the test were not resulting in learning. (51) The data yielded by the Instructor Rating Form with its Likert scale format gave another point of view on the quality of the converted materials and yielded descriptive statistics on the strengths and weaknesses of the modules. (52) The net effect of the field testing plan was to allow for relevant revision of all modules based on responses from a variety of class settings and final validation of module content for accuracy, appropriateness, and clarity. (53) With the final step of revision, the conversion process yielded curricula transformed from Armed Services training materials into competency-based instructional modules for the civilian (54) population in two high demand vocational areas at less cost than the independent development of such materials. Coming from the military area to the public sector, these converted materials are now available as core program materials for new vocational education offerings and as supplemental materials for existing programs. In addition, the modules could be useful to the practitioner studying for periodic recertification exams.


Strength
Weakness
1
2
3
4
5
6

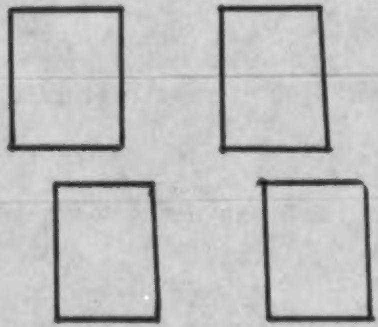
51


Content
Curriculum
Module Completed
Data Collection
USED
Field Test sites
Students
Instructors

52

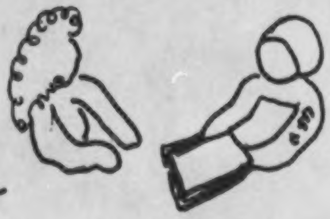

Steps to Completion

53



54 Array of modules

(55) The conversion process makes available to the civilian section, materials which had up-to-now been limited to the military. (56) Conversion of military materials is an economical means of supporting vocational education as it expands to meet the needs of more and more Americans.



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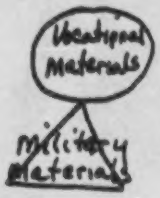


56

END

THANKS TO THE STUDENTS, FACULTY AND STAFF
OF THE FOLLOWING INSTITUTIONS FOR
FIELD TESTING THE MATERIALS:

DENTAL ASSISTANT

NORTH HAMPTON COUNTY AREA COMMUNITY COLLEGE
PIMA COMMUNITY COLLEGE
MARICOPA TECHNICAL INSTITUTE
LUNA VOCATIONAL TECHNICAL INSTITUTE
KINMAN BUSINESS UNIVERSITY
CENTRAL PIEDMONT COMMUNITY COLLEGE

ELI WHITNEY VOCATIONAL TECHNICAL SCHOOL
J.M. WRIGHT TECHNICAL SCHOOL

PHYSICIAN ASSISTANT

ESSEX COMMUNITY COLLEGE
BOWMAN GRAY MEDICAL SCHOOL
CATAWBA VALLEY TECHNICAL INSTITUTE
BAYLOR MEDICAL SCHOOL
UNIVERSITY OF NEBRASKA MEDICAL SCHOOL

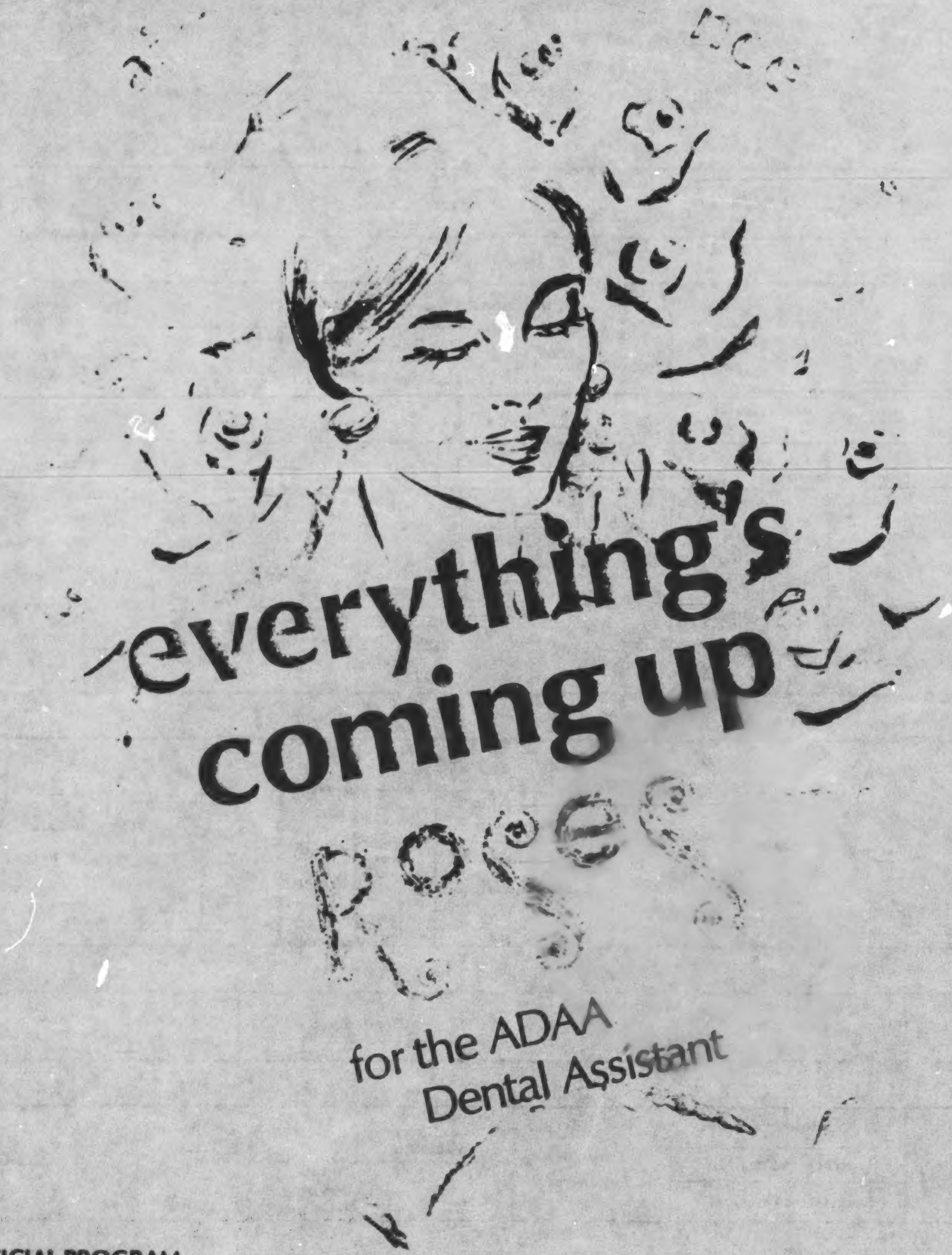
CUYAHOGA COMMUNITY COLLEGE
MERCY COLLEGE OF DETROIT
WICHITA STATE UNIVERSITY
EMORY UNIVERSITY SCHOOL OF MEDICINE

A PRODUCT OF:
UNITED STATES EDUCATION DEPARTMENT
OFFICE OF VOCATIONAL AND ADULT EDUCATION

AND
ORGANIZATION AND HUMAN RESOURCE
DEVELOPMENT ASSOCIATE, INC., AUSTIN,
TEXAS

Project Involvement with
American Dental Assistants Association:

- ADAA Conference Brochure
- Letter of Acceptance of article for the ADAA Journal
- Submitted article: Competency-Based Instructional Design for Dental Assistant Programs



everything's coming up Roses

for the ADAA
Dental Assistant

OFFICIAL PROGRAM

AMERICAN DENTAL ASSISTANTS ASSOCIATION

MEETING AT A GLANCE

	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9
FRI. Oct. 19	Budget and Finance Meeting					Board of Trustees								
SAT. Oct. 20	Board of Trustees Meeting					Educational Program						Texas Hoedown '79 Reception 8-12 midnight		
						Component Structure Forum	Dallas Tour							
							Legislative Workshop			Special Bylaws Revision Forum				
SUN. Oct. 21	Breakfast with the Board		Student Program											
			Official Opening of the 55th Annual Session			Budget Forum Bylaws Forum	Legislation Forum Education Forum	Certifying Board Forum	13 District Caucuses				ADA sponsored "ANNIE"	
MON. Oct. 22	House of Delegates				Past Presidents Luncheon				Balloting		ADA sponsored Barbecue & Rodeo			
						President's Workshop		Editors Workshop	USOE Project					
						Membership Workshop		Bylaws Workshop						
								Program Planning Workshop						
TUES. Oct. 23	House of Delegates					House of Delegates				Optional to reconvene House				
WED. Oct. 24		Educational Program			President's Luncheon		Awards & Installation Ceremony							
		Instructors Program						Recept. honoring President						
		Legislative Program												
THURS. Oct. 25		Board of Trustees Workshop				Board of Trustees Meeting								

☆ Optional reballoting 7–8 ☆

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MONDAY, OCTOBER 22 con't.

1 p.m. to 3 p.m.

President's Workshop
Mexico City/CC
Lois Mazzucchi, president, Lois Klinger, executive director of the American Dental Assistants Association. For presidents, presidents-elect, and anyone aspiring to presidential office on the state and local level.

Membership Workshop
Monte Carlo/CC
Teri Leibowitz, ADAA director of membership. For secretary/treasurers and membership chairmen on the state and local level.

3 to 4 p.m.

Editors Workshop
Paris/CC
Adrianne Frederick, ADAA editor/director of communications. For state and local editors and those wishing to develop their writing skills.

Bylaws Workshop
Montreal/CC
Kelly Knapp, ADAA Bylaws Committee chairman, Esther Sweeney, Special ADAA Bylaws Revision Committee chairman, and Louise Saks, Registered and Certified Parliamentarian. For state and local bylaws committee chairmen or members and those interested in association bylaws and in parliamentary procedures.

Program Planning Workshop
New Orleans/CC
Janelle Butler, president-elect, Joyce Flory, ADAA special projects coordinator. For presidents-elect or program chairmen on the state and local level.

4 to 5 p.m.

Educational Program
Mexico City/CC
"USOE Project: Conversion of Military Dental Assisting Curriculum for Civilian Education Programs," Dr. Barbara P. Mink. Dr. Mink is president of Organization and Human Resource Development Associates, a management consulting firm which is a woman-owned stock corporation. Specializing in the design and delivery of competency based training materials, she is an experienced consultant and trainer serving clients in education, industry, health care, and public service. She received her bachelor's, master's, and doctorate degrees from Duke University, and is listed in Outstanding Educators of America and in Who's Who in American Women.
(Certification renewal credits: 1)

4 to 6 p.m.

Balloting
Texican A and B/MB

6 p.m.

ADA-sponsored barbecue and rodeo, at Ranchland Circle R. A shuttle bus will be provided. Tickets are $10 each, available from the ADAA registration booth.

TELLERS AND ALTERNATES

DISTRICT	TELLER	ALTERNATE
1st	Joann Dean, RI	Penny Flanagan, MA
2nd	Patricia Pinto-Gould, NJ	Carmie Arnoldt, NY
3rd	Lynn Wisman, DC	Beverly Roberts, OH
4th	Lynn Strickland, NC	Helen Meredith, TN
5th	Judith Garrett, FL	Beverly Williams, MS
6th	Nellie Graves, MI	Verdelle Henderson, IL
7th	Marilyn King, MN	Vickie Gravette, SD
8th	Kelly Knapp, NE	Mary Rita Jones, IA
9th	Gaylynn Moffatt, LA	Beth Stubblefield, AK
10th	Carol Cologerou, WA	Candy Amestoy, MT
11th	Mary Lynn Sinn, WY	Pat Allbaugh, CO
12th	Betty Dodge, So. CA	Jo Beem, No. CA
13th	Florine Tso, AZ	

CREDENTIALS REPORT

	Monday	Tuesday
1. Board of Trustees		
2. Delegates		
3. Alternates		
4. Members		
5. Life Members		
6. Student Members		
7. Nonmembers and Guests		
8. Honorary Members		
Total registered		
Total voting members (total of 1 and 2)		

WEDNESDAY, OCTOBER 24

9 a.m. to noon

Educational Program:
Monte Carlo/CC
"Would You Work for You?" Robert E. Novak.
Mr. Novak, a management instructor at Ferris State College, Big Rapids MI, is in the field of principles of management, organization behavior, and the principles of business marketing. He presently is a doctoral candidate at the University of Michigan in educational administration and supervision, and he holds master's degrees in liberal arts and business administration. He has conducted numerous workshops and seminars and has a broad background in business, industry and education.
(Certification renewal credits: 3)

Instructors Program:
Mexico City/CC
"The Teacher's Role in Assuring Student Competence," R. Michael Lawler, PhD, and Darol L. Graham, PhD.
Dr. Lawler is assistant dean for academic affairs and assistant professor of allied health education at the University of Texas Health Science Center in Dallas. Dr. Graham is assistant professor at the University of Texas Health Science Center, teaching instruction, development and research. Both men received their doctorate degrees from Florida State University, and have authored and coauthored many publications.
(Certification renewal credits: 3)

Legislative Program:
London and Sydney/CC
Program on lobbying techniques and ways to conduct political campaigns, presented by Nancy Becker, New Jersey lobbyist and president of her own consulting firm. She represents various clients in the fields of health care, land use, education, and communications.
(Certification renewal credits: 3)

12:30 to 1:30 p.m.

President's Luncheon
International Ballroom/CC
Sylvia Green, who mixes her unique piano style with humor and wit, will entertain. Tickets for the President's Luncheon may be purchased at the ADAA registration booth for $10 each.

2 to 4 p.m.

Awards and Installation
Sydney and London Rooms/CC

Call to Order
Lois Mazzucchi, president

Presentation of Awards:
Mary Fillingham, Awards Committee chairman

MEMBERSHIP AWARD:
Largest percentage increase in membership in a constituent association
First:
Second:
Third:
Fourth:

MEMBERSHIP AWARD:
Largest numerical increase in membership in a component society
First:
Second:
Third:
Fourth:

Dr. Barbara P. Mink

Nancy Becker

Top: Darol L. Graham
Middle: R. Michael Lawler
Bottom: Robert A. Novak

American Dental Assistants Association
Suite 1130
666 North Lake Shore Drive, Chicago, Il 60611
Telephone: 312 664-3327

adaa

January 15, 1981

Dr. Barbara Mink
Project Director
Organization and Human Resource Development
1208 Somerset Avenue
Austin, TX 78753

Dear Doctor Mink:

Thank you for your efforts in making the revisions we requested for your article "Competency Based Instructional Design for Dental Assistant Programs."

We have tentatively scheduled the article for the September/October 1981 issue of the Journal, an issue we plan to devote to dental assistant education. We are certain your work will be a valuable addition to the other articles. We will, of course, send you copies of the issue in which it appears.

Thank you for your patience and co-operation in this matter. We look forward to publishing your work.

Sincerely,

Rosetta Gervasi

Rosetta Gervasi
Editorial Assistant

:rg

Competency Based Instructional Design for Dental Assistant Programs

For years the military has been training its own skilled professionals, and has produced a vast array of instructional materials for military dental and physician assistants, among others. Now some of these materials are being revised for civilian use under the sponsorship of the U.S. Department of Education in order to avoid duplication of efforts and to make available the highest quality instructional materials to everyone. The conversion of military materials is part of efforts to support quality vocational education under the Education Amendments Act of 1976.

One group taking part in these catalytic efforts is Organization and Human Resource Development Associates, Inc. (OHRD) of Austin, Texas. OHRD is a consultant firm headed by Dr. Barbara Mink, an expert in individualized, competency-based learning.

OHRD was awarded a contract to convert military materials into a course of individualized learning modules that can be used in the dental assistant programs of post-secondary institutions. Because the materials are self paced and self-evaluated, they can also be used for on-the-job training or home study to prepare for certification.

To fulfill its mission, OHRD set about three tasks: 1) to match available instructional materials to a list of topics currently taught to dental assistants, 2) to develop learning modules based on skills and knowledge needed by dental assistants, and 3) to field test and revise the modules with the help of dental assistant instructors and students.

Developing and Revising the Modules

OHRD began the project by canvassing the dental field for guidelines and research information, instructional materials, certification requirements, and current professional issues. They obtained research materials from community colleges, technical institutes, proprietary institutions, American Dental Association, American Dental Assistants Association, and the Association of Allied Health Professionals, among others. They conducted a study of dental assistant programs in the United States. Then they created a list of instructional topics and sources of materials (both military and civilian) for each topic.

Assisting in this process was an advisory board made up of dental assistant instructors, dental assistants, dentists, and instructional design specialists. Board members advised on the selection and treatment of course content during all phases of the project. They identified instructional topics not covered by the military materials and suggested curricula responsive to national examinations, regional needs, and other certification systems. With the help of the advisory board, OHRD staff selected objectives for the modules and designed learning activities and evaluation instruments. The advisory board was particularly helpful in integrating military and civilian content (sometimes reflecting markedly different approaches) into a uniform tool for civilian dental assistants.

The collaborative decision-making of experts in subject matter and instructional design was needed in order to design a curriculum that would meet three kinds of standards: those of the discipline itself (the content to be imparted), those of the community, and those of the individual students. Any curriculum that is to be effective must be periodically changed to keep up with changing college goals, vocational and licensing requirements, and student bodies. Without such revision, courses would quickly become solidified and irrelevant.

The usefulness of the materials to students was tested during the field-test phase. Whenever a significant number of students were not getting a certain question correct, OHRD staff assumed it might be that the question was not clear or that the learning activity had not presented that point effectively. They checked to be sure the material and the intended response were clear. If not, they were revised. In addition to student feedback, instructors were asked to evaluate modules for their effectiveness in teaching the stated objectives. Without such revision, there would be no guarantee these modules are any more useful to students than any other type of curriculum materials.

[INSERT SAMPLE OF INSTRUCTOR QUESTIONS ABOUT HERE. CAPTION READS: These are questions from OHRD's "Instructor Rating Form,"used to gather instructor feedback on the modules.]

Instructors using OHRD dental assisting modules are asked to respond to these questions by use of a rating scale of 1-5, where 1 equals the most negative and 5 the most positive response. (Instructors are requested to provide additional comments for negative responses.)

1. Are the pretest items consistent with the stated objectives?
2. Is the order in which the objectives are stated appropriate?
3. Are the criteria for judging acceptability of student pretest responses clear?
4. Are the learning activity steps appropriate in size?
5. Do the practice items accurately measure learner mastery of objectives?
6. Are the types of learning activities appropriate?
7. Is the material presented on the page in an interesting and clear manner?
8. Are the instructions to the learner clear?
9. Is the content of the module technically clear?
10. Do the module posttest items accurately measure mastery of the stated objectives?
11. Are the criteria for judging acceptability of student posttest responses clear?

Instructors are then asked open-ended questions on the modules they have just used and invited to supply additional input:

1. Are any supplementary learning materials appropriate for this module?
2. In terms of total course content, is too much or too little emphasis placed on the content of this module?
3. If material was to be added to this module what would it be?
4. If material was to be deleted from this module what would it be?
5. What do you consider the especially good aspects of this module to be?
6. Do you believe that this module would prepare a learner to pass the section of the national examination concerning this topic?
7. Do you believe that this module would prepare the learner to be an entry-level professional regarding this topic?

How the Modules Work

The modules created by OHRD are based on the theory of individualized instruction. This theory rests on two assumptions. Foremost is the belief that any student can master any amount of well-presented information, given a sufficient amount of time. Second is the belief that when students take an active role in their own learning, they are more likely to succeed and to get satisfaction from the results.

The modules are self-paced--students can go as fast or slow as is convenient to master the information. And they can score the results for themselves. The modules emphasize cognitive skills--the recall of knowledge and its application in carrying out dental assisting tasks and in solving problems. This approach complements the emphasis on psychomotor skills commonly found in materials such as those produced by Project ACORDE. Psychomotor skills are the manipulation of the body and of other physical objects in carrying out tasks.

Each OHRD module is organized into five parts: an introduction to the materials, a list of objectives to be mastered, learning activities, practice exercises, and pre and posttests.

INSERT SAMPLE FROM MODULE ABOUT HERE. CAPTION READS:
This is a sample learning section from an OHRD module on "Communication Skills: Transactional Analysis for Dental Assistants."

* Objectives are behaviorally stated, meaning that they describe exactly

Objective 8 Identify, diagram and give examples of complementary and crossed transactions.

Learning Activities

When people communicate with each other they not only exchange information, but also reinforce their feelings about themselves and each other. It is at this "feeling" level of communication that they make "transactions" with each other when they communicate. Being able to recognize the nature of the transaction can help the Dental Assistant in the goal of being a helper and making people more comfortable. Transactions become effective when the Dental Assistant can choose the ego state that best suits the situation.

Born to Win, a readily available paperback book by Muriel James and Dorothy Jongeward on Transactional Analysis contains an excellent section (pages 24-43) on transactions. It is suggested that you read this section before progressing in this module.

Analyzing transactions. When analyzing transactions a couple of guidelines are useful to remember:

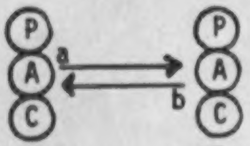
a) As long as communication between two persons proceeds, the vectors of most of their transactions are probably parallel.

b) When communication breaks down, look for the crossed transaction.

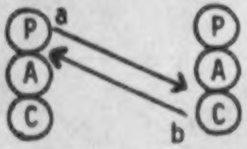
Examples of transactions -

1. Complementary transactions:

Adult to Adult
a) Dentist: "How is Mr. Brown?"
b) D.A.: "His gum is almost healed."

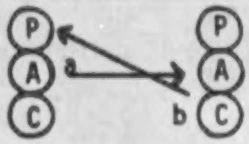


Parent to Child
a) Dentist: "You shouldn't have rushed so, your work is sloppy."
b) D.A.: "I know, I'm sorry."



2. Crossed transactions:

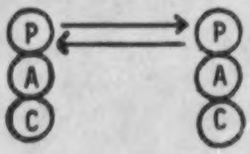
Adult to Adult crossed with Child to Parent
a) D.A.: "Tell me about the pain."
b) Patient: "Questions, questions! I'm tired of being pestered with all these questions."



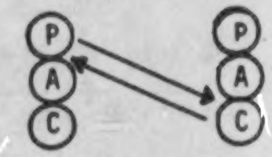
Practice Exercise (Objective 8)

1. Pair up and take turns carrying on complementary transactions using the ego states listed below.

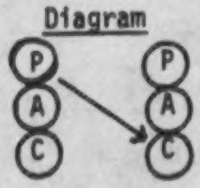
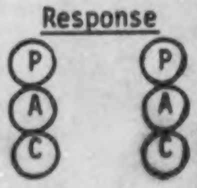
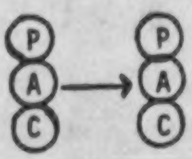
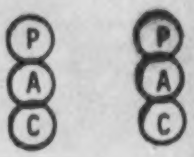
   a) Parent to Parent (discussing moral issues, politics, gossip, etc.).



   b) Parent to Child and Child to Parent (expressing criticism or sympathy, lecturing or comforting etc.).



2. Give a crossed response to each of these statements and then diagram the transaction.

Statement	Diagram	Response
a) Parent to Child: "You shouldn't be doing that!"		
b) Adult to Adult: "What do you think is a good idea to do about Ms. Brown's appointment?"		

what learners will be able to do with the new information. Objectives are presented all together at the beginning of the module to help students anticipate what they will be aiming for. They also appear individually at the beginning of each sub-topic in the module.

* Learning Activities are the actual presentation of the content. They are arranged in a sequence of sub-topics from basic to more complex. Mastery of one sub-topic is necessary before the student is ready to go on to the next sub-topic. Each learning activity presents background, theory, and perspective. Then, to clarify and expand understanding, it offers examples of situations, illustrations, or pictorial representations.

* Practice Exercises allow students to test themselves on learning activities they have just studied. Answers are provided at the end of the module so students can receive immediate feedback about how well they are doing. They can identify points they don't understand well and restudy these before going on to the next sub-topic.

* Pre and Posttests enable students to see what kind of progress they have made in learning the content of a module. They take the pretest before beginning the module to see what they already know, and the posttest after studying the module to see what additional information they have assimilated. These tests are based only on the evaluation standards provided by the objectives of the module.

Self-Paced Modules in the Classroom

Using modules like these in the classroom helps to ensure that every student has a chance to succeed. One advantage is that the objectives of the course and the way to learn them are clear to both instructor and students. They know exactly what to expect from each other and the course. If students find they have not mastered the information in a particular module, they can go back and restudy part or all of it. Or they may receive additional activities from the instructor to help in learning the module.

Another advantage is that the modules' approach to evaluation allows students to be in competition with themselves and not with each other. The traditional classroom evaluation we are all used to is called norm-referenced. It assumes there is a "normal" distribution of student learning abilities in every classroom. Grades are assigned by use of a normal curve. So many student performances must fall at either end of the curve. This approach ensures that students must compete with each other, and that some will be unsuccessful. Individualized modules, on the other hand, use a form of evaluation called criterion-referenced. Student performance is judged in comparison to standards set by the objectives of the modules. A student either does or does not master the objectives. And every student can master the objectives, given sufficient effort and time.

How can grades be assigned in a classroom using individualized modules? There are several methods. One is the credit/incomplete system. The student works through the course objectives until they are all met and then receives credit for the course. If all the objectives are not met by the end of the course, the student does not fail, but receives an incomplete. Students with incompletes may then take additional time and receive additional attention to help finish the objectives. When finished, they receive credit for the course.

Another grading strategy is to contract with students for specific grades. The course is divided into modules and students are required to finish so many modules at a certain level of mastery for an A, B, or C. As students work through the course, they confer with the instructor to see whether they will be able to earn the grade they contracted for. Students working faster and better than anticipated can recontract for a higher grade. Students who will not complete the number of modules they contracted to finish may recontract for a lower grade or may request an incomplete.

What Students Have to Gain

Individualized instruction allows students to master basic skills to their own satisfaction, and to choose among options based on their own needs and wants. It encourages self-determination, which in turn enhances student self-confidence.

Individualized, self-paced modules actually demand that students take more responsibility for the learning process than more traditional learning approaches. The instructor does not "give" a grade--it is earned. The individualized approach is demanding of instructors and students alike, but the reward is learning for oneself.

About the Authors

Dr. Barbara Mink is currently the Project Director of the Military Conversion Project and President of Organization and Human Resource Development Associates, Inc., (OHRD) Austin, Texas. She conducts training and does organization consultation in management of instructional innovation, competency-based curricular designs, management development, organization development and renewal. Her most recent book is Developing and Managing Open Organizations: A Model and Methods for Maximizing Organizational Potential (with Oscar Mink and James Shultz).

Ms. Beverly Moore is currently a Product Developer for OHRD and a Ph.D. student in Adult Education at the University of Texas at Austin. She has work experience with social service delivery systems and research projects focusing on effectiveness and innovation in community colleges.

Project Documents Dissemination Lists

"THE PROCESS OF CONVERTING MILITARY TRAINING MATERIALS TO COMPETENCY-BASED MODULES FOR CIVILIAN USE"

Detailed description of process of curriculum conversion designed to aid other instructional developers in the task of making military educational materials appropriate for civilian use. Report describes activities undertaken in each of the following conversion steps:

1. Establish liaison to obtain military materials.
2. Assemble and compare military materials.
3. Obtain civilian curricula.
4. Become acquainted with materials and issues of the profession and its training.
5. Obtain/develop a list of practitioner competencies.
6. Assemble an advisory board.
7. Design format for converted materials.
8. Convert/develop military materials.
9. Initiate review procedures.
10. Develop field test procedure.
11. Secure field test sites.
12. Initiate field test process.
13. Develop organization and utilization guidelines.
14. Print revised modules and make available.

Person/Organization	Number of Materials Sent
Karyn Newby Director, Dental Assisting Kinman Business University Washington	1
Lynn Mureen, RDH Director, Dental Program Eli Whitney Vocational/Technical School Connecticut	1

Person/Organization	Number of Materials Sent
Patricia Hampton, CDA Director, Dental Assistant Program Truckee Meadows Community College Nevada	1
Robert Clarke, DDS Director, Dental Assisting Northampton County Area Community College Pennsylvania	1
James Clark, DDS Head, Dental Assistant Program Central Piedmont Community College North Carolina	1
Betty Burr, CDA Director, Dental Assistant Program J. M. Wright Technical School Connecticut	1
Lucy Brajevich, CDA Director, Dental Assistant Program Pima Community College Arizona	1
Mary Fillingham, CDA Director, Dental Assistant Program Maricopa Technical Community College Arizona	1
Bernadette Jojola, CDA Chairperson, Dental Assistant Program Luna Vocational Technical Institute New Mexico	1
Jennie Schaefer, CDA Representative for American Dental Assistants Association Oregon	1
Helen Tuchner, CDA, RDA Representative from American Dental Assistants Association Minnesota	1
Claire Williamson, CDA Representative of American Dental Assistants Association Georgia	1
John Watson, DDS Dentist in private practice Texas	1

Person/Organization	Number of Materials Sent
Peg Nash Counselor & Program Specialist, The University of Arizona Arizona	1
Lois Kryger Dental Assisting Consultant, U. S. Dept. of Health & Human Services Maryland	2
American Dental Assistants Association Illinois	3
Evelyn Hobbs Office of Research in Medical Education University of Washington Washington	1
Judith Kirkhorn Director, Module Development Project University of Kentucky Kentucky	1
American Association of Dental Schools Washington, D. C.	1
American Dental Hygienist Association Illinois	1
Joyce Sigmon Director, Dental Assisting Education American Dental Association Illinois	1
National Center-Vocational Education Ohio	10
State Directors of Vocational Education	50
American Society of Allied Health Professions Washington, D. C.	1
American Vocational Association Virginia	1
Lawrence Zane Director, National Network for Curriculum Coordination Hawaii	1

Person/Organization	Number of Materials Sent
Rebecca Douglass Director, National Network for Curriculum Coordination Illinois	1
James Shill Director, National Network for Curriculum Coordination Mississippi	1
Joseph Kelly Director, National Network for Curriculum Coordination New Jersey	1
Bob Patton Director, National Network for Curriculum Coordination Oklahoma	1
William Daniels Director, National Network for Curriculum Coordination Washington	1
Association for Physician Assistants Virginia	1
Carl Fasser Coordinator, Physician Assistant Program Baylor University Texas	
Arlene Granderson Physician Assistant Consultant, U. S. Dept. of Health & Human Services Maryland	1
American Association for Community & Jr. Colleges Washington, D. C.	1
Organization & Human Resource Development Associates, Inc. (OHRD) Texas	3

"ORGANIZATION & UTILIZATION GUIDELINES FOR DENTAL ASSISTANT CURRICULUM MODULES"

Designed to provide instructors and/or administrators concerned in the proper utilization of the series of modules with a number of guidelines appropriate to the specific modules and to the implementation of competency-based instruction in general. The Guidelines document contains;

1. Organization and use of the modules.
2. What is competency-based instruction:
   - Mastery of instructional objectives
   - A systematic process of materials development and revision
   - Role of student and instructor
3. List of dental assisting tasks and knowledge areas.

Person/Organization	Number of Materials Sent
Karyn Newby Director, Dental Assisting Kinman Business University Washington	1
Lynn Mureen, RDA Director, Dental Program Eli Whitney Vocational/Technical School Connecticut	1
Patricia Hampton, CDA Director, Dental Assistant Program Truckee Meadows Community College Nevada	1
Robert Clarke, DDA Director, Dental Assisting Northampton County Area Community College Pennsylvania	1
James Clark, DDS Head, Dental Assistant Program Central Piedmont Community College North Carolina	1

Person/Organization	Number of Materials Sent
Betty Burr, CDA Director, Dental Assistant Program J. M. Wright Technical School Connecticut	1
Lucy Brajevich, CDA Director, Dental Assistant Program Pima Community College Arizona	1
Mary Fillingham, CDA Director, Dental Assistant Program Maricopa Technical Community College Arizona	1
Bernadette Jojola, CDA Chairperson, Dental Assistant Program Luna Vocational Technical Institute New Mexico	1
Jennie Schaefer, CDA Representative for American Dental Assistants Association Oregon	1
Helen Tuchner, CDA, RDA Representative from American Dental Assistants Association Minnesota	1
Claire Williamson, CDA Representative of American Dental Assistants Association Georgia	1
John Watson, DDA Dentist in private practice Texas	1
Peg Nash Counselor & Program Specialist, The University of Arizona Arizona	1
Lois Kryger Dental Assisting Consultant, U. S. Dept. of Health & Human Services Maryland	5
American Dental Assistants Association Illinois	5

Person/Organization	Number of Materials Sent
Evelyn Hobbs Office of Research in Medical Education University of Washington Washington	1
Judith Kirkhorn Director, Module Development Project University of Kentucky Kentucky	1
American Association of Dental Schools Washington, D. C.	1
American Dental Hygienist Association Illinois	1
Joyce Sigmon Director, Dental Assisting Education American Dental Association Illinois	1
National Center-Vocational Education Ohio	10
State Directors of Vocational Education	51
American Society of Allied Health Professions Washington, D. C.	5
American Vocational Association Virginia	5
Lawrence Zane Director, National Network for Curriculum Coordination Hawaii	6
Rebecca Douglass Director, National Network for Curriculum Coordination Illinois	6
James Shill Director, National Network for Curriculum Coordination Missippissi	6
Joseph Kelly Director, National Network for Curriculum Coordination New Jersey	6

Person/Organization	Number of Materials Sent
Bob Patton Director, National Network for Curriculum Coordination Oklahoma	6
William Daniels Director, National Network for Curriculum Coordination Washington	6
American Association for Community & Jr. Colleges	5
National Association of Health Career Schools California	4
Organization & Human Resource Development Associates, Inc. (OHRD) Texas	5

"DENTAL ASSISTANT MODULES"

A series of 28 modules intended for use in any post-secondary program of Dental Assistant training across the country. The resultant curriculum takes the form of modularized, competency-based instruction. The modules contain the components of an individualized course consisting of introduction/rationale, behaviorally stated objectives, learning activities, practice exercises, key terms, and module test.

Person/Organization	Number of Materials Sent
Karyn Newby Director, Dental Assisting Kinman Business University Washington	1
Lynn Mureen, RDH Director, Dental Program Eli Whitney Vocational/Technical School Connecticut	1
Patricia Hampton, CDA Director, Dental Assistant Program Truckee Meadows Community College Nevada	1
Robert Clarke, DDS Director, Dental Assisting Northampton County Area Community College Pennsylvania	1
James Clark, DDS Head, Dental Assistant Program Central Piedmont Community College North Carolina	1
Betty Burr, CDA Director, Dental Assistant Program J. M. Wright Technical School Connecticut	1
Lucy Brajevich, CDA Director, Dental Assistant Program Pima Community College Arizona	1

Person/Organization	Number of Materials Sent
Mary Fillingham, CDA Director, Dental Assistant Program Maricopa Technical Community College Arizona	1
Bernadette Jojola, CDA Chairperson, Dental Assistant Program Luna Vocational Technical Institute New Mexico	1
Jennie Schaefer, CDA Representative for American Dental Assistants Association Oregon	1
Helen Tuchner, CDA, RDA Representative from American Dental Assistants Association Minnesota	1
Claire Williamson, CDA Representative of American Dental Assistants Association Georgia	1
John Watson, DDS Dentist in private practice Texas	1
Peg Nash Counselor & Program Specialist, The University of Arizona Arizona	1
Lois Kryger Dental Assisting Consultant, U. S. Dept. of Health & Human Services Maryland	2
American Dental Assistants Association Illinois	3
Evelyn Hobbs Office of Research in Medical Education University of Washington Washington	1
Judith Kirkhorn Director, Module Development Project University of Kentucky Kentucky	1
American Association of Dental Schools Washington, D. C.	1

Person/Organization	Number of Materials Sent
American Dental Hygienist Association Illinois	1
National Center-Vocational Education Ohio	3
American Society of Allied Health Professions Washington, D. C.	1
American Vocational Association Virginia	1
National Association of Health Career Schools California	1
American Association for Community & Junior Colleges Washington, D. C.	1
Lawrence Zane Director, National Network for Curriculum Coordination Hawaii	1
Rebecca Douglass Director, National Network of Curriculum Coordination Illinois	1
James Shill Director, National Network for Curriculum Coordination Mississippi	1
Joseph Kelly Director, National Network for Curriculum Coordination New Jersey	1
Bob Patton Director, National Network for Curriculum Coordination Oklahoma	1
William Daniels Director, National Network for Curriculum Coordination Washington	1
Joyce Sigmon Director, Dental Assisting Education American Dental Association Illinois	1
Organization and Human Resource Development Associates, Inc. (OHRD) Texas	3

"PROMOTIONAL PIECE: COMPETENCY-BASED DENTAL ASSISTANT MODULES: A CONVERSION PROJECT"

A forefold brochure describing:

1. What is conversion
2. Why competency-based instruction
3. Who can use the modules
4. What modules are available

The brochure has a self-mailer attached for requests for further information about the Dental Assistant conversion project.

Person/Organization	Number of Materials Sent
Karyn Newby Director, Dental Assisting Kinman Business University Washington	25
Lynn Mureen, RDH Director, Dental Program Eli Whitney Vocational/Technical School Connecticut	25
Patricia Hampton, CDA Director, Dental Assistant Program Truckee Meadows Community College Nevada	25
Robert Clarke, DDS Director, Dental Assisting Northampton County Area Community College Pennsylvania	25
James Clark, DDS Head, Dental Assistant Program Central Piedmont Community College North Carolina	25
Betty Burr, CDA Director, Dental Assistant Program J. M. Wright Technical School Connecticut	25
Lucy Brajevich, CDA Director, Dental Assistant Program Pima Community College Arizona	25

Person/Organization	Number of Materials Sent
Mary Fillingham, CDA Director, Dental Assistant Program Maricopa Technical Community College Arizona	25
Bernadette Jojola, CDA Chairperson, Dental Assistant Program Luna Vocational Technical Institute New Mexico	25
Jennie Schaefer, CDA Representative for American Dental Assistants Association Oregon	25
Helen Tuchner, CDA, RDA Representative for American Dental Assistant Association Minnesota	25
Claire Williamson, CDA Representative for American Dental Assistants Association Georgia	25
John Watson, DDS Dentist in private practice Texas	25
Peg Nash Counselor & Program Specialist, The University of Arizona Arizona	25
Lois Kryger Dental Assisting Consultant, U. S. Dept. of Health & Human Services Maryland	100
American Dental Assistants Association Illinois	500
Evelyn Hobbs Office of Research in Medical Education University of Washington Washington	25
Judith Kirkhorn Director, Module Development Project University of Kentucky Kentucky	25
American Association of Dental Schools Washington, D. C.	25

Person/Organization	Number of Materials Sent
American Dental Hygienist Association Illinois	25
Joyce Sigmon Director, Dental Assisting Education American Dental Association Illinois	25
National Center-Vocational Education Ohio	150
State Directors of Vocational Education	510
NASAHOE - State Administrators of Health Occupations Education	146
American Society of Allied Health Professions Washington, D. C.	25
American Vocational Association Virginia	25
National Association of Health Career Schools California	25
Lawrence Zane Director, National Network for Curriculum Coordination Hawaii	10
Rebecca Douglass Director, National Network for Curriculum Coordination Illinois	10
James Shill Director, National Network for Curriculum Coordination Mississippi	10
Joseph Kelly Director, National Network for Curriculum Coordination New Jersey	10
Bob Patton Director, National Network for Curriculum Coordination Oklahoma	10
William Daniels Director, National Network for Curriculum Coordination Washington	10

Person/Organization	Number of Materials Sent
2 Brochures to each Dental Assisting Program listed by the American Dental Association	462
American Association for Community & Junior Colleges Washington, D. C.	25

"ORGANIZATION & UTILIZATION GUIDELINES FOR PHYSICIAN ASSISTANT CURRICULUM MODULES"

Designed to provide instructors and/or administrators concerned in the proper utilization of the series of modules with a number of guidelines appropriate to the specific modules and to the implementation of competency-based instruction in general. The Guidelines document contains:

1. Organization and use of the modules.
2. What is competency-based instruction:
    - Mastery of instructional objectives
    - A systematic process of materials development and revision
    - Role of student and instructor
3. Competency list and selected materials matrix.

Person/Organization	Number of Materials Sent
National Center-Vocational Education Ohio	10
State Directors of Vocational Education	51
American Society of Allied Health Professions Washington, D. C.	5
American Vocational Association Virginia	5
Lawrence Zane Director, National Network of Curriculum Coordination Hawaii	6
Rebecca Douglass Director, National Network of Curriculum Illinois	5
James Shill, Director, National Network for Curriculum Coordination Mississippi	5

Person/Organization	Number of Materials Sent
Joseph Kelly Director, National Network for Curriculum Coordination New Jersey	5
Bob Patton Director, National Network for Curriculum Coordination Oklahoma	5
William Daniels Director, National Network for Curriculum Coordination Washington	5
American Association for Community and Junior Colleges	5
American Association for Physician Assistants Virginia	5
Carl Fasser Coordinator, Physician Assistant Program Baylor University Texas	6
Arlene Granderson Physician Assistant Consultant, U. S. Dept. of Health & Human Services Maryland	5
Beulah M. Ashbrook, Ed.D. Director of Education, American Society of Health Professions (1st year of project), Health Materials Consultant (2nd year of project), Washington, D. C.	1
DeWitt Baldwin, M.D. Assistant Dean, University of Nevada, School of Medicine Nevada	1
James P. Desantis, Lt. Colonel, USAF, MC Course Supervisor, Physician Assistant Program Sheppard Air Force Base Texas	1
Jesse Edwards, Ph.D. Assistant Director, Physician Assistant Program University of Nebraska Medical Center Nebraska	1

Person/Organization	Number of Materials Sent
Daniel Fleisher, M.D. Associate Dean for Curricula Affairs Medical College of Wisconsin Wisconsin	1
Jimmie Pharris, Ph.D. Director, Physician Assistant Training Program Bowman Gray School of Medicine North Carolina	1
Carter A. Sinclair, M.D. Director, Physician Assistant Program Catawba Valley Technical Institute North Carolina	1
Vicki Phyler, PA Instructor, Physician Assistant Program Catawba Valley Technical Institute North Carolina	1
C. Ed Smith, Ph.D. President, Health Policy Analysis & Accountability Network New Mexico	1
Robert Curry, M.D. Director, Div. of Allied Health Professions Emory University School of Medicine Georgia	1
Virginia Moore, M.D. Assistant Professor of Pediatrics University of Colorado Medical Center Colorada	1
Archie Golden, M.D. The John Hopkins University Maryland	1
Elaine Chaykin, FNP, NHS Director, School of Medicine Sacramento Medical Center California	1
Steven Gladhart, Ed.D. Program Director, Physician Assistant Program College of Health Related Professions Kansas	1
Katherine Kaminiski, PAC, MA Director, Physician Assistant Program Essex Community College New Jersey	1

Person/Organization	Number of Materials Sent
Lucille H. Messier Acting Chairperson, Dept. of Physician's Assistant Education University of New York - Stony Brook New York	1
Tony Miller, PA Coordinator, Physician Assistant Program Cuyahoga Community College Ohio	1
Rowena Sobczyk, M.D. Director, Physician Assistant Program Medical University of South Carolina South Carolina	1
National Association of Health Career Schools California	4
Organization and Human Resource Development Associates, Inc. (OHRD) Texas	5

"PHYSICIAN ASSISTANT MODULES"

A series of 23 modules intended for use in any post-secondary program of Physician Assistant training across the country. The resultant curriculum takes the form of modularized, competency-based instruction. The modules contain the components of an individualized course consisting of introduction/rationale, behaviorally stated objectives, learning activities, practice exercises, key terms, and module test.

Person/Organization	Number of Materials Sent
National Center-Vocational Education Ohio	3
American Society of Allied Health Professions Washington, D. C.	1
American Vocational Association Virginia	1
National Association of Health Career Schools California	1
American Association for Community & Junior Colleges Washington, D. C.	1
Lawrence Zane Director, National Network of Curriculum Coordination Hawaii	1
Rebecca Douglass Director, National Network of Curriculum Coordination Illinois	1
James Shill Director, National Network for Curriculum Coordination Mississippi	1
Joseph Kelly Director, National Network of Curriculum Coordination New Jersey	1

Person/Organization	Number of Materials Sent
Bob Patton Director, National Network for Curriculum Coordination Oklahoma	1
William Daniels Director, National Network for Curriculum Coordination Washington	1
American Association for Physician Assistants Virginia	1
Carl Fasser Coordinator, Physician Assistant Program Baylor University Medical School Texas	1
Arlene Granderson Physician Assistant Consultant U. S. Dept. of Health & Human Services Maryland	1
Beulah M. Ashbrook, Ed.D. Director of Education, American Society of Health Professions (1st year of project), Health Materials Consultant (2nd year of project), Washington, D. C.	1
DeWitt Baldwin, M.D. Assistant Dean, Univeristy of Nevada, School of Medicine Nevada	1
James P. Desantis, Lt. Colonel, USAF, MC Course Supervisor, Physician Assistant Program Sheppard Air Force Base Texas	1
Jesse Edwards, Ph.D. Assistant Director, Physician Assistant Program University of Nebraska Medical Center Nebraska	1
Daniel Fleisher, M.D. Associate Dean for Curricula Affairs Medical College of Wisconsin Wisconsin	1

Person/Organization	Number of Materials Sent
Jimmie Pharris, Ph.D. Director, Physician Assistant Training Program Bowman Gray School of Medicine North Carolina	1
Carter A. Sinclair, M.D. Director, Physician Assistant Program Catawaba Valley Technical Institute North Carolina	1
Vicki Plyler, PA Instructor, Physician Assistant Program Catawba Valley Technical Institute North Carolina	1
C. Ed Smith, Ph.D. President, Health Policy Analysis & Accountability Network New Mexico	1
Robert Curry, M.D. Director, Div. of Allied Health Professions Emory University School of Medicine Georgia	1
Virginia Moore, M.D. Assistant Professor of Pediatrics University of Colorado Medical Center Colorado	1
Archie Golden, M.D. The John Hopkins University Maryland	1
Organization & Human Resource Development Associates, Inc. (OHRD) Texas	2

"PROMOTIONAL PIECE: COMPETENCY-BASED PHYSICIAN ASSISTANT MODULES: A CONVERSION PROJECT"

A forefold brochure describing;

1. What is conversion
2. Why competency-based instruction
3. Who can use the modules
4. What modules are available

The brochure has a self-mailer attached for requests for further information about the Dental Assistant conversion project.

Person/Organization	Number of Materials Sent
National Center-Vocational Education Ohio	150
State Directors of Vocational Education	510
Shelly Hicks Conference Coordinator American Association of Physician Assistants Virginia	500
NASAHOE - State Administrators of Health Occupations Education	146
American Society of Allied Health Professions Washington, D. C.	25
American Vocational Association Virginia	25
National Association of Health Career Schools California	25
Lawrence Zane Director, National Network for Curriculum Coordination Hawaii	25
Rebecca Douglass Director, National Network for Curriculum Coordination Illinois	25

Person/Organization	Number of Materials Sent
James Shill Director, National Network for Curriculum Coordination Mississippi	25
Joseph Kelly Director, National Network for Curriculum Coordination New Jersey	25
Bob Patton Director, National Network for Curriculum Coordination Oklahoma	25
William Daniels Director, National Network for Curriculum Coordination Washington	25
American Association for Physician Assistants Virginia	50
Carl Fasser Coordinator, Physician Assistant Program Baylor University Texas	50
Arlene Granderson Physician Assistant Consultant U. S. Dept. of Health & Human Services Maryland	50
American Association for Community & Junior Colleges	25
Beulah M. Ashbrook, Ed.D. Director of Education, American Society of Health Professions (1st year of project), Health Materials Consultant (2nd year of project), Washington, D. C.	50
DeWitt Baldwin, M.D. Assistant Dean, University of Nevada, School of Medicine Nevada	50

Person/Organization	Number of Materials Sent
James P. Desantis, Lt. Colonel, USAF, MC Course Supervisor, Physician Assistant Program Sheppard Air Force Base Texas	50
Jesse Edwards, Ph.D. Assistant Director, Physician Assistant Program University of Nebraska Medical Center Nebraska	50
Daniel Fleisher, M.D. Associate Dean for Curricula Affairs Medical College of Wisconsin Wisconsin	50
Jimmie Pharris, Ph.D. Director, Physician Assistant Training Program Bowman Gray School of Medicine North Carolina	50
Carter A. Sinclair, M.D. Director, Physician Assistant Program Catawba Valley Technical Institute North Carolina	25
Vicki Phyler, PA Instructor, Physician Assistant Program Catawba Valley Technical Institute North Carolina	25
C. Ed Smith, Ph.D. President, Health Policy Analysis & Accountability Network New Mexico	50
Brochures sent to each Physician Assistant Program in the United States	162
Robert Curry, M.D. Director, Div. of Allied Health Professions Emory University School of Medicine Georgia	25
Virginia Moore, M.D. Assistant Professor of Pediatrics University of Colorado Medical Center Colorado	25
Archie Golden, M.D. The John Hopkins University Maryland	30

Person/Organization	Number of Materials Sent
Elaine Chaykin, FNP, NHS Director, School of Medicine Sacramento Medical Center California	25
Steven Gladhart, Ed.D. Program Director, Physician Assistant Program College of Health Related Professions Kansas	25
Katherine Kaminiski, PAC, MA Director, Physician Assistant Program Essex Community College New Jersey	25
Lucille H. Messier Acting Chairperson, Dept. of Physician's Assistant Education University of New York - Stony Brook New York	25
Tony Miller, PA Coordinator, Physician Assistant Program Cuyahoga Community College Ohio	25
Rowena Sobczyk, M.D. Director, Physician Assistant Program Medical University of South Carolina South Carolina	25

Sample Letters and Comments from the PA and DA Field

COMMENTS FROM THE FIELD

- Nanci C. Rice, RPA-C
  Didactic Coordinator
  State University of New York at Stony Brook
  New York

"The students found the modules very useful as part of their learning experiences. The benefit of these modules seem to depend greatly upon the individual learning styles of the students. For example, most students found the content of the module (Objective and Learning Activities section) very useful."

- Robert H. Curry, M.D.
  Director
  Division of Allied Health Program
  Emory University
  Atlanta, Georgia

"PA module list and objectives very explicit and look quite good."

- Tony Miller
  Coordinator
  Physician Assistant Program
  Cuyohoga Community College
  Ohio

"I see another use for the modules being having a student that did poorly in our pharmacology course go through them for remedial work."

- Bernadette Jojola
  Chairperson
  Dental Assistant Program
  Luna Vocational Technical Institute
  New Mexico

"These materials fit well into our institution's philosophy of individualized instruction. Our institution stresses writing objectives and having students master objectives at the 85% level."

"The objectives being clearly stated - it helps the student know what to study."

"The objectives being restated throughout the module so the students know what material pertains to what objectives."

"Frequent practice exercises."

"The content is clear - the narrative material is good."

- Robert G. Clarke, D.D.S.
  Director of Dental Assisting
  Northampton County Area Community College
  Pennsylvania

"N.C.A.C.C. is pleased to take part in this worthwhile educational endeavour." (Said after reviewing some of the modules.)

- Betty Burr, CDA
  Director
  Dental Assistant Program
  J. M. Wright Technical Institute
  Connecticut

"The topics of your curriculum overlap exactly with what we are doing. What is helpful is that yours is also individualized."

- W. Ward Patrick, M.D.
  Instructor
  Bowman-Gray School of Medicine
  North Carolina

After using some of the modules, he said, "We look forward to participating in your project and would be happy to use your updated and revised modules during our next academic year."

- Jimmie Pharris, Ph.D.
  Program Director
  Bowman-Gray School of Medicine
  North Carolina

"External and internal anatomy explanations good."

- Diane Ragsdale
  Research Associate,
  Baylor University Medical School
  Texas

"organized approach to Neurological System Module test, especially good."

- Carter A. Sinclair, M.D.
  Director
  Physician Assistant Program
  Catawba Valley Technical Institute

In reference to Anti-epileptic module - "concise and clear.

- Peg Nash
  Counselor & Program Specialist
  The University of Arizona
  Arizona

"The dental assistant materials were especially useful to our project. We appreciate your cooperation and sharing."

"Both the 'Guidelines for a Dental Assistant Curriculum' and the 'DA Module List and Objectives' have been helpful for our Adult Vocational Education Project."

- Lois K. Kryger
  Dental Assisting Consultant
  Department of Health & Human Services
  Washington, D.C.

"The guidelines provide a good overview of the development of competency-based modules. I think you have done a fine job in presenting a logical step-by-step process in the development of the modules. This information should be highly useful to all faculty members who are starting to convert their curriculum to modular design."

- Dr. Arlene Granderson
  Department of Health and Human Services
  Washington, D. C.

"There is a great need for all the converted pharmacology modules."

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
HEALTH RESOURCES ADMINISTRATION
HYATTSVILLE, MARYLAND 20782

Bureau of Health Professions

August 18, 1980

Barbara P. Mink, Ed.D.
Organization and Human Resource
Development Associates, Inc.
1208 Somerset Avenue
Austin, Texas 78753

Dear Barbara:

Enclosed are the two draft documents that you asked me to review. You will find my few comments directly on the drafts as requested.

In my view, the guidelines provide a good overview of the development of competency-based modules. I think that you have done a fine job in presenting a logical step-by-step process in the development of the modules. This information should be highly useful to all faculty members who are starting to convert their curriculum to modular design.

It may interest you to know that the faculty institute that we supported last summer also emphasized a formative evaluation approach to curriculum revision. This was one of the several sessions in which the participants hung on every word of the instructor, and they all expressed a profound interest in implementing the concept.

If I can be of further assistance, please let me know. Best regards.

Sincerely,

Lois K. Kryger
Dental Assisting Consultant
Professional Education Branch
Division of Dentistry

Enclosure

Public Schools
of the District
of Columbia
Division of Career Development

Office of Educational Operations
415 12th Street, N.W. Wash. D. C. 20004

March 23, 1981

Ms. Barbara P. Mink
Project Director
Military Materials Conversion Process
Organization and Human Resource Development
Associates, Inc.
1208 Somerset Avenue
Austin, Texas 78753

Dear Ms. Mink:

We are in receipt of the package of dental and physician assistant materials.

My professional and curriculum development team is currently reviewing this material for use in our school programs.

Sincerely,

Otho E. Jones

Otho E. Jones
Assistant Superintendent

OEJ:rbs

AMERICAN ASSOCIATION OF DENTAL SCHOOLS
1625 MASSACHUSETTS AVENUE, N.W.
WASHINGTON, D.C. 20036
202/667-9433

March 24, 1981

Barbara P. Mink, Ed.D.
Project Director
Organization and Human Resource
Development Associates, Inc.
1208 Somerset Avenue
Austin, Texas 78753

Dear Dr. Mink:

The package containing the modules converted to civilian use from materials originally prepared by the military for training dental assistants arrived just prior to the Association's annual meeting. Upon our return, we reviewed the materials, and we wish to thank you for bringing the modules to our attention. Also, the informational brochures will be useful in responding to requests for sources of teaching materials.

We congratulate you on the completion of an interesting and worthwhile project.

Sincerely,

Janet R. Burnham

Janet R. Burnham
Coordinator for Auxiliary Education

JRB/jf

THE UNIVERSITY OF ARIZONA
DIVISION OF CONTINUING EDUCATION
SUITE 1201, 1717 EAST SPEEDWAY BOULEVARD, TUCSON, ARIZONA 85719

September 23, 1980

Barbara P. Mink, Ed.D.
Project Director
Organization and Human Resource
Development Associates, Inc.
1208 Somerset Avenue
Austin, Texas 78753

Dear Dr. Mink:

I appreciate your sending me the two draft documents last August. Both the "Guidelines for a Dental Assistant Curriculum" and the "DA Module List and Objectives" have been helpful for our Adult Vocational Education Project.

I have enclosed a brochure which will explain our project, and it also lists the twenty occupations under study. At this time, we have completed our search for competency resources and are about to undertake the process of having the competencies verified by local educators, employers, and employees. We expect to complete this validation by January. During the months that follow, we'll be analyzing the results and will have a final report ready by May. I will be happy to send you our results then.

Thank you for your assistance and cooperation.

Sincerely,

Peg Nash

Peg Nash
Counselor/Program Specialist

PN:pf

Enclosure

Arizona Consortium for Education in the Social Services
Conferences and Short Courses Special Interest Courses Great Decisions Program
Challenges of Maturity Specialized Clientele Programs

ADULT
VOCATIONAL
EDUCATION
PROGRAM

AN OCCUPATIONAL COMPETENCE DEVELOPMENT PROJECT

A Continuing Education Project
of the University of Arizona

conducted by:

THE UNIVERSITY OF ARIZONA
Continuing Education Division

supported by:

ARIZONA STATE DEPARTMENT OF EDUCATION
Adult Vocational Education Department

The University of Arizona is an EEO/AA Employer and does not discriminate on the basis of sex, race, religion, color, national origin, Vietnam Era veterans' status, or handicapping condition in its admissions, employment and educational programs or activities. Inquiries may be referred to Dr. Jean Kearns, Assistant Executive Vice President, Administration 503, phone (602) 626-3081.

Project Description:

This project is designed to define and list occupational competencies, or job skills, for twenty occupations. These particular jobs are expected to be in demand in Tucson, do not require a college degree, and have not been studied by any training program locally. To learn which job skills and tasks are necessary for successful job performance in each of the twenty occupations, the project coordinator will make individual contact with local employers in business, industry, labor, and government.

Employers will help:

- COMPILE a list of necessary job skills and tasks
- REVIEW the competencies commonly possessed by successful job holders
- EXAMINE the training needed to prepare and upgrade potential and current employees.

Objectives:

The list of competencies will be available to local vocational planning and training programs for both adults and high school students. The information will also be given to the Arizona State Department of Education for dissemination.

The project will also develop curriculum for five of the twenty occupations to use in vocational training programs. One of these will be field tested in Tucson.

Benefits:

The information will provide:

- STUDENTS with a realistic set of job requirements
- INSTRUCTORS with a set of standards
- ADMINISTRATORS with information for program design and development
- EMPLOYERS with more competent employees

The following twenty occupations are being studied by the AVEP competence project:

Business:	Computer Operator Computer Programmer Insurance Agent Real Estate Agent Retail Store Manager
Construction:	Apprentice Carpenter
Health:	Dental Assistant Dental Hygienist Medical Laboratory Technician
Manufacturing:	Appliance Repairer Electronics Mechanic Electronics Technician Solar Technician
Marketing & Distribution:	Buyer
Media & Communication:	Television-cable Installer
Personal Service:	Cosmetologist Waiter/Waitress
Public Service:	Nursery School Attendant Teacher Aide 1
Transportation:	Truck Driver

Arizona Department of Education Project Officer:
Robert V. Kirwood, Ph.D.

Project Director:
Robert V. Conter, M.B.A.

Project Coordinator:
Peg Nash, M. Ed.

THE UNIVERSITY OF ARIZONA
DIVISION OF CONTINUING EDUCATION
SUITE 1201, 1717 EAST SPEEDWAY BOULEVARD, TUCSON, ARIZONA 85719

March 16, 1981

Organization and Human Resource
Development Associates, Inc.
1208 Somerset Avenue
Austin, Texas 78753

Dear Ms. Mink:

Thank you for sending the materials for me to use. The dental assistant materials were especially useful to our project.

We appreciate your cooperation and sharing.

Cordially,

Peg Nash

Peg Nash
Counselor/Program Specialist

PN:pf

Arizona Consortium for Education in the Social Services
Conferences and Short Courses Special Interest Courses Great Decisions Program
Challenges of Maturity Specialized Clientele Programs

Section F: Emerging Issues and Recommendations

EMERGING ISSUES AND SUBSEQUENT RECOMMENDATIONS

During the course of this conversion project, various stumbling blocks and problem areas emerged which required special attention from the project staff. In order to best serve as the first of the projects involving military training materials converted into civilian competency-based modules, the project staff wish to list potential problems and to offer recommendations for dealing with them toward the goal of facilitating other projects of this nature.

Availability of military materials. There needs to be a more complete understanding between contractor and contractee of whose responsibility it will be to obtain the military materials. This is especially critical for scheduling purposes, as time must be budgeted for the search and acquisition of the materials which are to be converted. Availability of the materials should be ascertained by the government agency, or it should be made known that time, travel and duplication expenses on the part of the contractee may be needed to locate and obtain the necessary materials.

Quality of military materials. It should not be assumed by the contractee that the military materials will exist in a narrative form. Our experience was that the DA materials were for the most part in narrative form, necessitating more format than content changes, while many of the PA materials existed only in rough outline form with some handouts as supplements. Therefore, the contractee must be aware that the process of conversion will go hand in hand with a good deal of development based, at times, entirely on outside civilian sources.

Overlap of existing projects. Through our search for exemplary civilian materials and because of our efforts to maintain and seek out contacts in each of the fields, the project staff became aware of a number of overlapping projects going on in the field (i.e., Bowman Gray School of Medicine curriculum materials (PA), project ACCORDE (DA), project CASE (DA), University of Kentucky project (DA), University of Washington project (DA), American Academy of Physician Assistant project (PA). This overlap made it necessary to define more exactly what contribution this conversion project was making to the field in order not to duplicate the efforts of other government funded groups.

Lack of coordination among government agencies. In concert with the issue mentioned above, there was almost a great opportunity missed. Through the personal efforts of OHRD staff members, two Department of Health and Human Services experts on curriculum development were discovered -- Ms. Lois Kryger specializes in the field of Dental Assisting and Ms. Arlene Granderson in Physician Assistant programs. As they had not been notified of our existence, nor we of theirs, we were not able to initially take advantage of their knowledge and abilities. OHRD did, subsequently, communicate with these persons and received substantive feedback on modules and other project documents.

Need for a competency study preceding the conversion/development stage. Because of the state of flux which exists in both these fields regarding job role delineation, and because OHRD could not assume that the military materials addressed the same needs as required by a civilian practitioner, it became increasingly obvious to the project staff that a competency study was needed to adequately define the end goals of instruction. As this was not included in the project budget, a simple composite of all available competencies was assembled so that each module could address the highest possible standard of on-the-job work requirements.

Lack of acceptance of the competency-based format in the PA programs. Traditionally, PA courses are taught by lecture on the part of medical school instructors. Self-instructional, self-paced, competency-based learning has not been accepted in most existing programs. To overcome this obstacle, OHRD included a section on the uses of competency-based instructions in the Organization & Utilization Guidelines and, in addition, spent time with each of the field test schools explaining ways in which the materials could be used within a traditional framework.

The project also contacted Dr. Robert Roush, the Director for the Center of Allied Health at the Baylor College of Medicine. He had several comments regarding the acceptability of the materials after they had been developed. "There is a problem in that physicians are very reluctant to use materials they have not developed themselves. You could develop very good material and a physician at a particular facility would say that it is not worth a hoot." He saw a way around these difficulties: "have people in the schools which are to be field test sites look at the materials in advance to validate the curriculum beforehand. This would in some way answer the 'not-developed-here' phenomenon."

Cooperation on the part of field test schools. This area can be a potential downfall for any project which requires field testing. Often one school official will commit his/her school to do the testing while the instructors have little or no sense of responsibility or involvement in the project. In order to combat the problem of lack of cooperation and participation, OHRD made sure that each school was offered the entire range of modules to be tested in order to let each instructor pick out those which s/he would be interested in using. In addition, a contact person was maintained at each site so that questions from the project staff could be directed to one central person.

Development of curriculum for "vocational" setting. Several important pieces of information were learned, particularly from Mr. Carl Fasser who himself is a physician assistant, director of a physician assistant program and past president of the American Physician Assistant Association. He cautioned against "lowering" the standards of the materials, but advised making the materials so they can be placed anywhere. He stated that "most physician assistant programs in community colleges do have entrance requirements and they are really upper division programs being taught by medical school faculty, but the program happens to be housed in a community college." He remarked that "there is a trend in the physician assistant profession that physician assistant programs are to be four year programs."

There was also a problem in this respect with the original RFP in that the terms "medical assistant" and "physician assistant" were often used interchangeably. Medical assistant programs are traditionally vocational/technical courses taught in community colleges, technical institutions and proprietary schools.

Wider use of modules. Conversations with Mr. Carl Fasser (Baylor University Medical School) brought out that the physician assistants have to take an exam every six years for re-certification. This examination, however, is aimed at entry level competencies. He indicated that the American Association of Physician Assistants would probably be extremely interested in the modular approach to materials that we are developing because they could be used for the continuing education of physician assistants who have to take the examination every six years. He also believes remote area physician assistant programs (such as Alaska) would be interested in using modular materials.

Another potential use for the physician assistants materials is by persons who challenge the physician assistant exam. The challenger, however, must have been working with a primary care physician for five years who will verify that the physician assistant is performing certain roles in that arrangement. Mr. Fasser suggested that the converted competency-based modules could be used by such persons.